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CA'S DEVELOPMENT TOOLS TO COME UNDER ALLFUSION BRAND

Executive shakeup won't affect product line

BY DAVID RUBINSTEIN

The recent corporate shakeup at Computer Associates International Inc. will not affect the company's long-term strategy regarding its development tools, as it plans to announce a consolidation of those tools under the AllFusion brand at the upcoming CA World user conference in Las Vegas.

Questions arose about the future of the developer products when recent interviews from newly appointed high-ranking officials spotlighted the Unicenter, BrightStor and eTrust brands but made no mention of the developer tools.

John Meyer, the former Giga and Forrester Research

analyst who now is CA's director of business strategy for the lifecycle management business unit, said those development tools that are going to be advanced will carry the AllFusion brand, while those that only will be supported for existing customers will not. He would not list which products will not be advanced.

An accounting scandal brought down former CEO Sanjay Kumar, who was replaced last month on an interim basis by former Vivendi Universal Games CEO and CMP Media LLC president of publishing Kenneth Cron. Kumar will remain at CA as chief software architect. ■

Java Tools: The Next Battleground

IDEs seen as way to lure developers

BY YVONNE L. LEE

Five months after the Java Community Process approved version 1.4 of the Java 2 Enterprise Edition specification, Sun Microsystems Inc. held a "kick-off" event to highlight community support for the new spec. It also pointed out the next Java battleground: tools.

"The runtime wars are over," said BEA Systems Inc. deputy CTO Benjamin Renaud, dismissing the competitive history of J2EE app servers. "It's IBM and BEA. So, tools is where a lot of the innovation is."

But Rob Clark, director of Oracle Corp.'s J2EE and Web

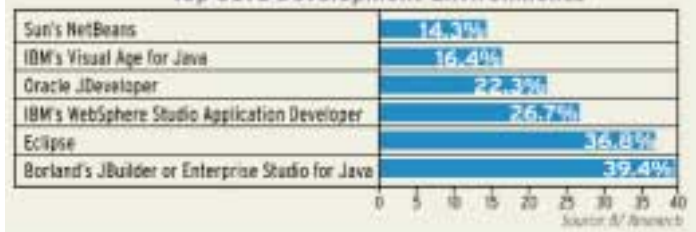
services product management, said his company is "coming on strong, too."

In fact, while 40 percent and 35 percent of respondents in a November 2003 BZ Research study said they used IBM Corp.'s WebSphere or BEA's WebLogic, respectively, another 31 percent said they used Oracle's application server. Multiple responses were permitted. BZ Research is a subsidiary of BZ Media LLC, publisher of SD Times.

But as application servers have become more commoditized in the larger J2EE stacks these large vendors offer, tools

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Top Java Development Environments



The Selling of Sarbanes-Oxley

Vendor hype aside, it's not a new tool category

BY JENNIFER DEJONG

The Sarbanes-Oxley act doesn't say a word about software, but a growing number of vendors are hoping the legislation will help them sell more of it.

Using terms such as "Sarbanes-Oxley accelerator," they are bombarding developers with pitches for software that will help public companies comply with the law, enacted in the wake of high-profile accounting scandals. "There is a whole lot of marketing going on here," said John



Michael Oxley, left, and Paul Sarbanes.

The precise impact on developers of the complex legislation is not yet clear.

Chuck Ames, CEO of business process management software company Oak Grove Systems Inc., in Calabasas, Calif.

Given the complexity, there is no such thing as a single tool that enables a company to comply with the bill, said Patrick J. McGartland, vice president of business development at Meridio Inc., a Chicago company that sells document and records management software.

Product offerings fall into two categories: document and records management; and business process management (BPM). Both types of software are being used to help companies comply with the bill co-authored by Sen. Paul Sarbanes, D-Md., and Rep. Michael Oxley, R-Ohio.

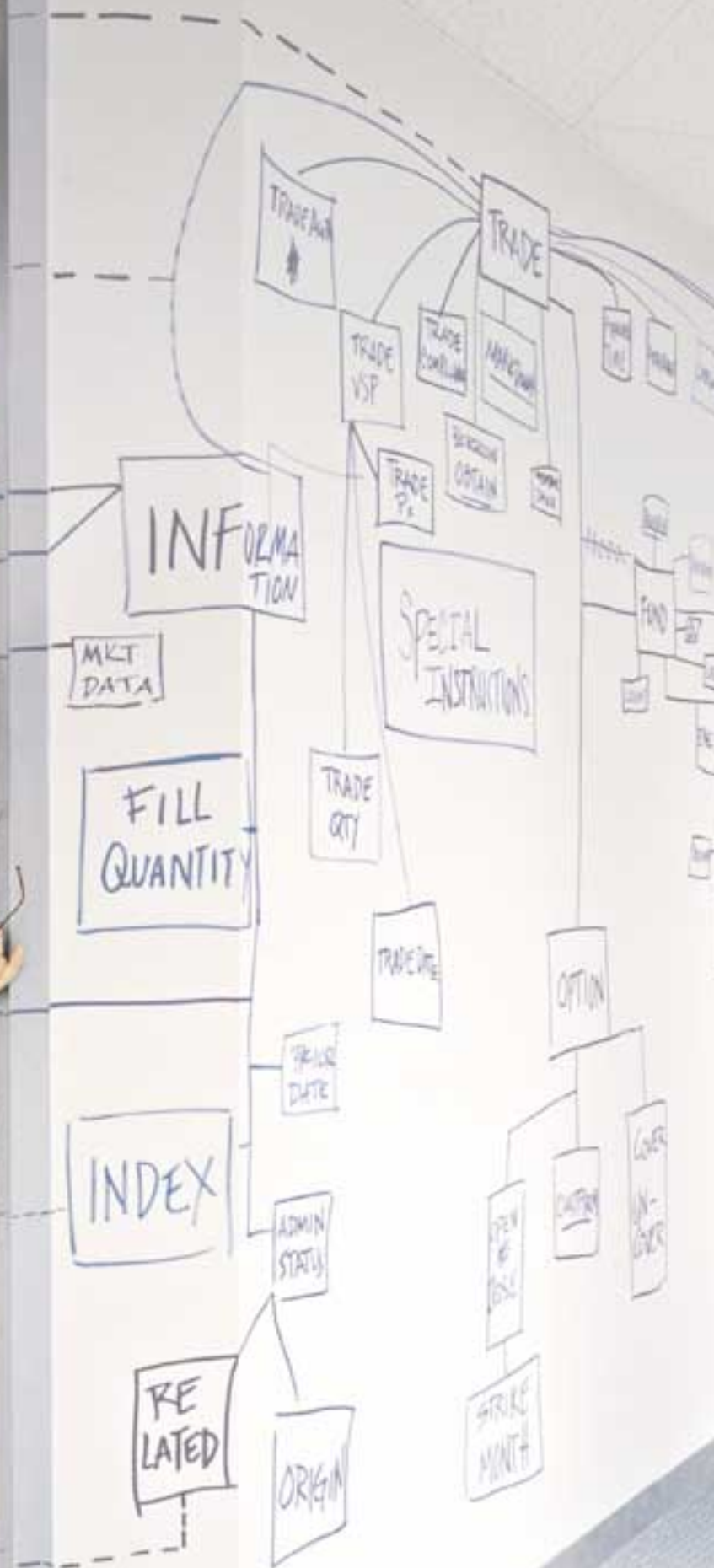
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The Best Of the Best



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ITAA Says Offshoring Good for U.S. Economy, Workers

BY JENNIFER DEJONG

The worldwide sourcing of computer software and services actually will increase the number of U.S. jobs, improve real wages for American workers and benefit the U.S. economy overall, according to a study by the Information Technology Association of America (ITAA), a trade association based in Arlington, Va.

Funded by the ITAA and

conducted by Waltham, Mass.-based economic research firm Global Insight Inc., "The Impact of Offshore IT Software and Services Outsourcing on the U.S. Economy and the IT Industry" determined that from 2003 to 2008, total savings from the use of offshore resources are estimated to grow from US\$6.7 billion to \$20.9 billion, spurring invest-

ment in new IT projects and services and creating new jobs.

"The U.S. IT work force will continue to grow," said ITAA president Harris Miller. But some of the study's own data appears to contradict Global Insight's conclusion that offshoring benefits U.S. IT workers. For instance, the study found that in the software and services area, the economy will create 516,000 jobs over the next five years in an environment with global sourcing, but only 490,000 without it. But of these 516,000 new jobs, 272,000 will go offshore and only 244,000 will remain onshore.

The study, released at the end of March, cites those numbers as evidence that global sourcing will create more U.S. IT jobs. But given that all 490,000 jobs created without global sourcing would be in the U.S., the net gain for the U.S. appears to be greater without offshoring.

THE INFORMATION TECHNOLOGY ASSOCIATION OF AMERICA

What It Is: The ITAA is an Arlington, Va.-based, member-funded trade association that promotes the interests of the U.S. information technology industry.

Members: Over 400, including Adobe Systems Inc., Amazon.com, Computer Associates International Inc., Dell Inc., eBay Inc., IBM Corp., Intel Corp., Macromedia Inc., Microsoft Corp., Oracle Corp., PeopleSoft Inc., Sanctum Inc. and SAP America.

Current Initiatives: Evaluating the impact of the Health Information Portability and Accountability Act (HIPAA) on IT companies, promoting benefits of wireless data and voice technologies for federal organizations, and prohibiting state and local taxing jurisdictions from taxing Internet access services or goods and services sold online.

Source: www.ita.org

INTERNATIONAL OUTSOURCING: HOW IT WILL HELP THE ECONOMY

Spending for global sourcing of computer software and services is expected to grow at a compound annual rate of almost 26 percent, from US\$10 billion in 2003 to \$31 billion in 2008.

During the same period, total savings from the use of offshore resources are estimated to grow from \$6.7 billion to \$20.9 billion, driving investment in new IT projects.

The benefits of global sourcing contribute significantly to real gross domestic product (GDP) in the United States, adding \$33.6 billion in 2003. By 2008, real GDP is expected to be \$124.2 billion higher than it would be in an environment in which offshore IT software and services outsourcing does not occur.

Source: Information Technology Association of America

Embarking on a Trip Into the Enterprise

Embarcadero revs data modeler with collaboration, architecture features

BY DAVID RUBINSTEIN

There is data, and then there is DATA.

For many small organizations, data management is as easy as updating an Excel spreadsheet or alphabetizing Word documents and saved e-mails. One step up are the workgroups within large enterprises, which often tap into only one small piece of the data structure to create applications. Take another step up and there are the data architects, who are charged with making sense of all the data a large enterprise accrues and then imposing the organization's business rules on that data, figuring out where to store it, and in what form.

Embarcadero Technologies Inc. is adding features for handling those last two steps to the May 3 release of its E/R Studio 6.5 data modeler and E/R Repository 3.0. With those updates, Embarcadero hopes to grow these tools beyond their workgroup roots into a broader solution.

"We're not building all the functionality of a big-time enterprise repository, but we're scarily close," said Greg Keller, Embarcadero's director of

enterprise modeling solutions.

Keller said one of four key new features in E/R Studio 6.5 is a "MetaWizard" that helps developers import metadata, make a model of it, and standardize the model within the larger architecture. It also can produce data for export that can populate a myriad of targets, including UML, XML, business intelligence and data visualization tools such as Cognos and Business Objects, data modeling products based on notations such as IDEF 1x and Information Engineering, and extract-transform-load products, Keller said.

"You want to ensure a continuum of metadata across a company," he explained. "There are thousands of databases managing similar data. Some call a field an address, while others call a similar field customer. They need to conform to a common standard, and that's a huge focus of [Embarcadero's] Model-Driven Data Solutions group."

A second major upgrade is the addition of data "where used" interfaces, which allows data architects to find out where an organization's data is

most used and automates the creation of binds and associations, which before this release had been "tremendously costly and time-consuming for the data architect," Keller said. The tool also can distinguish patterns and redundancies across an enterprise, helping architects to make the data structures more efficient.

The tool includes a new dimensional modeling environment that lets architects specify

how to model data warehouses with rich rules within an organization, and how to populate that design information in a business intelligence repository, such as those from Cognos or Business Objects, Keller said. "We were amazed when we found how many people data touches, and how seldom they received refreshes about where the data lies," he noted.

Last, a database performance optimization feature has

been included to help architects redefine database designs and ensure those modifications make their way back into the corporate data stores.

The changes to E/R Repository are in its data dictionary and a new project management interface, according to Keller.

Although pricing for E/R Studio 6.5 hadn't been finalized as of press time, Keller indicated it would stay close to the US\$2,995 per seat of version 6.0. The MetaWizard is an add-on utility to E/R Studio and is sold separately; the E/R Repository costs \$10,000 per connected team of 10 or more users of E/R Studio. ■

ALAN KAY WINS ACM TURING AWARD

Alan Kay, a well-known computer industry pioneer, has been recognized with the Association for Computing Machinery's highest honor, the 2003 Turing Award.

Kay, currently a senior fellow at HP Labs and president of the Viewpoints Research Institute, may be best known for managing the team that developed Smalltalk. The language developed out of Kay's interest in Seymour Papert's Logo teaching language, and was created in the 1970s during Kay's tenure at the Xerox Palo Alto Research Center. While today it's used only in academic and niche applications, Smalltalk is often considered to be the original object-oriented programming language, influencing today's C++ and Java.

Kay also envisioned a ubiquitous portable computer that would be used to access network-based information, called the Dynabook, and contributed to the development of Apple's Macintosh in the early 1980s.

—Alan Zeichick



News Briefs

COMPANIES

Microsoft Corp. is now making available the XML schema for its Visio 2003 diagramming tool, called DataDiagramML, through a royalty-free license . . . **The Middleware Company** and **DevelopMentor** have teamed to create a community and training alliance, and will be collaborating on joint marketing, sales and membership activities.

NEW PRODUCTS

PathScale Inc. has released AMD64-optimized Linux compilers for C/C++ and Fortran 77/90/95. The new **PathScale EKO** compilers work on the AMD Opteron and Athlon 64 processors . . . **jBase International** is offering a gateway between its **jBase** multivalue database and **Caché**, a database from InterSystems Corp. . . . **Sybase Inc.** has released **Real Time Data Services**, a data publishing system that works with multiple databases, including its own Adaptive Server Enterprise, as well as with DB2, Oracle and SQL Server. Real Time Data Services delivers event-driven information from multiple systems to a message bus using a proactive publishing system, compared with traditional poll-based methods of extracting database changes . . . **Visual Numerics Inc.** has released **IMSL Thread Safe Fortran Numerical Library**, a special version of its Fortran library designed to run on multiprocessing systems more efficiently. The thread-safe library allows multiple instances of a particular routine to be running simultaneously in multiple threads without data corruption or locks. The library runs on 64-bit AIX and 32-bit and 64-bit Solaris . . . **Ch Mechanism Toolkit 1.0** is a new utility from SoftIntegration Inc. The toolkit, which works with the company's Ch C/C++ interpreter for Windows, is a set of routines for mechanical motion design and analysis, such as for four-bar linkages and cam-follower systems. The toolkit costs US\$199 for academic use and \$899 for commercial . . . **Turbolinux Inc.**, now based in Japan, is releasing a consumer-focused distribution of Linux. **Turbolinux 10F** incorporates a Windows Media compatible audio/video player, as well as a JVM and a Macromedia Flash player. The distribution will be available in Japan by the end of May, and worldwide by the end of June.

UPGRADES

VMware Inc. will update its namesake virtual machine software product lines to run on the AMD64 architecture. The releases, expected over the next 18 months, will allow **VMware** virtual machines, installed on AMD64-compliant servers or workstations, to mix 32-bit and 64-bit operating systems on the same hardware. The first version with AMD64 support will be **Workstation 4.5**, expected in June . . . A software update for **Avalanche**, a network testing and simulation system from Spirent Communications Inc., will offer flexible load-testing profiles, expanded security tests, and integration with Mercury Interactive's LoadRunner test analyzer. **Avalanche 6.1** also can simulate staggered traffic peaks to create scenarios based on a global user base accessing a network application or Web site . . . **Computer Associates International Inc.** has updated its enterprise database to add 64-bit processing on IBM's zSeries mainframes, two-phase commit compatibility with DB2 and



WebSphere MQ, and SQL statement caching. **Advantage CA-IDMS r16** also includes parallel access volume exploitation to improve I/O rates and reduce response time. The database is available now for z/OS and OS/390; a version for VSE/ESA, z/VM and BS2000/OSD will be out later this year . . . **Microsoft Corp.** has renamed the forthcoming update of the Tablet PC version of its desktop operating system as **Windows XP Tablet PC Edition 2005**. The software remains scheduled for a mid-2004 release along with Windows XP Service Pack 2, but a Microsoft spokesperson said that the new name would suit it better than its previous name, Windows XP Tablet PC Edition 2004. A release candidate for SP2 is available from www.microsoft.com/technet/prodtechnol/winxppro/sp2preview.mspx . . . A minor update to Sybase Inc.'s **Adaptive Service Enterprise** allows for improved security using IPv6, Kerberos and pluggable authen-

► continued on page 21

SlickEdit Makes Refactoring Reality for C++ Programmers

BY JENNIFER DEJONG

Refactoring, the process of optimizing existing source code to improve structure and performance, is popular in the Java and Extreme Programming worlds. However, it's been more difficult to implement refactoring in C++.

To address the problem, SlickEdit Inc. announced version 9 of its Visual SlickEdit development tool, which it claims is the first commercial tool to support C++ refactoring.

Many developers attempt to refactor C++ applications manually using search-and-replace techniques, but such efforts are rarely successful, said Sandy Smith, SlickEdit's vice president of product management and marketing. "Their managers say, 'No, don't do that. It's too time-consuming and error-prone.'"

Visual SlickEdit 9 offers a safe, accurate way to do C++ refactoring, claimed Smith. Chief among the 10 refactorings it provides are rename, which updates the rest of the code when it renames variables, methods and classes; extract method, which lets the developer create a new method from a code fragment; and encapsulate field, which generates getter and setter methods for the specified variable and makes that variable private, according to Smith.

Also new to version 9 is a GUI builder that lets Java developers construct user interfaces with Swing and AWT while simultaneously editing code; and the ability to edit, compile and debug Common Language Runtime (CLR) applications. Although Microsoft developers can perform those functions in Visual Studio, according to Smith, Visual SlickEdit's editing features, including navigation, symbol manipulation and analysis, and differencing with side-by-side comparisons, are more advanced than those in Visual Studio.

Of interest to C# developers is a code completion feature that allows them to view help and parameter information for CLR library functions from within Visual SlickEdit 9, said Smith.

CODE EDITOR TURNED IDE

Visual SlickEdit originated in 1988 as a text-based code editor, but over time it has evolved into an integrated development environment (IDE) that supports 47 languages—including C, C++, C#, COBOL, HTML, Java, Perl, Python, Visual Basic .NET and XML—and runs on Linux, Unix and Windows, according to Smith.

Cross-language features in version 9 include full-screen editing, which lets developers close windows, panes and icons

they aren't using; dual-monitor support for those who want more work space; and an update feature that notifies developers when new patches are available.

Visual SlickEdit 9, which costs US\$269 per developer, supports CodeWright emulation, allowing users of Borland's recently discontinued code editor to keep their familiar key bindings and migrate to SlickEdit. It also offers a "soft wrap" feature, which enables developers to easily view long lines of code without scrolling, said Smith.

The Linux and Windows versions of Visual SlickEdit 9 are available at a \$99 upgrade price through May 31.

SlickEdit CTO Clark Maurer said the reason why C++ refactoring is so difficult to implement is that C++ still supports its non-object-oriented predecessor, C language. Neither Java nor C# includes constructs as complicated as those in C++, he said.

Java development environments, including the Eclipse open-source framework, Borland's JBuilder and JetBrains' IntelliJ, support refactoring. JetBrains also is expected to release a C# tool that supports refactoring.

Refactored applications not only perform better, Smith said, but are easier to maintain and enhance. ■



Visual SlickEdit 9 is the first development tool to support C++ refactoring, claims the company.



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IBM Shifting Toward SOA

BY JENNIFER DEJONG

IBM Corp. took a first step last month in formally repositioning WebSphere as a product line for building service-oriented architectures. The company announced WebSphere Business Integration (WBI) Server Foundation 5.1, as well as consulting services aimed at helping customers plan and carry out SOA strategies.

WBI is not a new member of the WebSphere family. It's an updated version of the enterprise edition of the application server, repositioned with messaging around SOA. "WBI is the foundation product in the business integration family for building service-oriented architectures," said Bob Sutor, IBM's director of WebSphere software.

New to WBI is support for the Business Process Execution Language (BPEL) specification. Published by IBM, BEA Systems Inc. and Microsoft Corp. and submitted to the Organization for the Advancement of Structured Information Standards (OASIS) in 2002,

BPEL defines how disparate Web services interact to perform a series of tasks required to carry out a business process.

Microsoft claims its integration server BizTalk 4.0 announced earlier this year supports BPEL. A spokesperson from BEA noted that BPEL is still under development and that the company's

WebLogic product line will support the specification when it is finalized.

Having a standard way to integrate tasks is central to IBM's vision of SOA, where a business process, such as placing and filling an order, may span not only a company's own applications but also those belonging to its partners or cus-

tomers, said Sutor. Prior to WBI, when the WebSphere product line relied on IBM's proprietary WorkFlow Definition Language, it was difficult to do that, he said.

WBI also includes a technology IBM calls the Common Event Infrastructure, which uses XML as a standard way to report on events, such as a serv-

er going down, that could interrupt a business process. Each application has a different way of defining what an event means, said Uttam Narsu, a principal analyst at Forrester Research Inc., in Cambridge, Mass. The common event infrastructure saves developers from having to deal with Oracle's or Siebel's native format for reporting events, he said.

WBI costs US\$49,000 per microprocessor and runs on Linux, Unix and Windows. ■

WebSphere Studio Gets Faces Lift

BY DAVID RUBINSTEIN

Support for JavaServer Faces, Service Data Objects and a new Enterprise Generation Language are the major improvements to IBM's WebSphere Studio Application Developer and Site Developer, which will become available May 21, according to the company.

The company also announced that the Rational Suite of development tools has been updated with support in the XDE rapid application development environment for Visual C++, which Eric Naiburg, IBM's group mar-

keting manager for desktop products, said means XDE users now can model, reverse-engineer and code-generate applications for every .NET language.

To best implement the JavaServer Faces (JSF) specification, Naiburg explained, IBM has built a visual tool into the WebSphere Studio set that allows developers to drag and drop components onto a palette instead of having to write code from tag libraries.

Service Data Objects is a specification for attaching data sources to Web pages in a visual

way that IBM and BEA have submitted to Sun's Java Community Process as JSR 235, which is currently under consideration by that group. IBM also has created a 4GL language called Enterprise Generation Language, which incorporates features familiar to SQL, COBOL or RPG developers so they can work in that language to build data-driven Web applications and the Studio tool automatically generates the Java code, he explained. The Application Developer also includes a set of tools for laying out and

designing portlets similar to JavaServer Pages, he said.

Along with XDE support for Visual C++, IBM Rational has introduced an XDE plug-in for the Model Driven Architecture that provides model-to-model transformations. The company has integrated its Test Manager tool with VMware's Virtual Infrastructure tools so users can test their applications on multiple versions of operating systems, and has updated the Rational Robot user interface testing tool with support for Borland's PowerBuilder and Delphi, Microsoft's Visual Studio and Oracle forms. The Rational tools became available in mid-April. ■

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Easing Developer Agitation Over Testing

Start-up Agitar uses code analysis to automate test creation and execution

BY DAVID RUBINSTEIN

With the increased acceptance of Extreme Programming and JUnit, many developers no longer are repelled by the

thought of having to run tests on their code. Alberto Savoia, who founded the test business unit at Sun Microsystems Inc., said that years from now, the

thought of developers not doing formal testing will be unheard of.

Savoia, who left Sun for Google, now is chief technology

officer at a California start-up called Agitar Software Inc., which has created a tool that automates the creation and execution of software unit tests.

"I'm a believer in testing. It sounds great in theory," Savoia said. "There should be a JUnit test for every class. But developers complain it takes four times as long to write test code as to complete their project."

To create automated tests, Agitar uses a technique it calls software agitation, which in its simplest terms analyzes the codebase for variables, relationships and behaviors. This discovery and observation of how code is supposed to behave is what enables the tool, called Agitator, to generate the data needed in tests. Agitator then provides developers with a list of those behavioral observations, and if the developer sees that the code has done what it was meant to do, he can create an assertion that the functionality is correct, and that assertion can be tested against, then saved and used in regression tests, Savoia explained.

AGITATOR GETS SMART

Agitator "can be trained to learn about code," said Mark de Visser, Agitar's vice president of marketing. "It's like Google; every time you click on it, you make it a little smarter. It becomes familiar with data types, and it's really good with strings at the moment."

In conjunction with the Agitar code analyzer, Agitar sells a metric tool that presents multiple views into an organization's testing. "You can see class by class, developer by developer, the priorities, levels of complexity, code coverage and test targets to see how developers are doing," Savoia said.

Agitator has been designed for Java developers—"It's my background at Sun," Savoia said—but the company plans to move forward to C#. The next release, version 2.0, set for the JavaOne conference in June, will be fully integrated with Eclipse, he added, noting that Agitator already is tightly integrated with Borland's JBuilder, IBM's WebSphere Application Developer and IntelliJ's IDEA.

"We're finding a higher level of acceptance," Savoia said, "or a much lower level of rejection, from developers about writing their own tests." ■

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Snapbridge Snaps Out XML IDE, Server

BY YVONNE L. LEE

Barely a month after introducing its XStudio 2.5 XML editing tool, Snapbridge Software Inc. in late April brought out a beefed-up version, along with a low-priced XML server.

The US\$499 XStudio Pro 2.0 takes XStudio 2.5's ability to edit XSL transformations or stylesheets and tacks on the ability to edit full XML documents and schemas. It also adds management and debugging capabilities.

The Carlsbad, Calif., company also released FDX XML Server, a \$499 J2EE-based XML server that CEO Angus McDonald said even small workgroups

and consulting organizations can afford. "We need a price point where someone can actually swipe a credit card [to purchase it]," said company spokesperson Christopher Dale.

FDX XML Server has a streaming function to perform XSL transformations in real time, and can send the results as XML or HTML, or as a SOAP message in a Web service, Dale

said. Its native XML database can store XML, images and PDFs. It has an interface for Web-based Distributed Authoring and Versioning (WebDAV), which allows remote users to col-

laborate and manage files.

"We can deploy this in real-time analytical applications," said McDonald, adding that such applications include business intelligence and online publications.

The tools and server all can be downloaded from www.snapbridge.com/downloads. ■

DUNDAS ANIMATES ITS CHARTS

BY JENNIFER DEJONG

Adding animation effects to previously static business charts, Dundas Software Ltd. announced last month its updated Chart for .NET 4.0.

The tool enables developers to add bar, pie, doughnut and other business chart types to ASP.NET and Windows forms applications. New to 4.0 is support for two formats for displaying animated images: Macromedia Inc.'s Flash file format and Scalable Vector Graphics (SVG) format, said Ed Worsfold, director of marketing at the Toronto-based company. "Charts have a new dynamic when they are moving," he said.

For example, a chart that displays stock market data could include an animated rendition of the daily close price, he said.

Also new to 4.0 is the ability to create a template that captures a chart's visual effects and colors, making it easy for the developer to create future charts with the same look and feel, said Worsfold.

In addition, 4.0, which starts at US\$699 per developer, supports several new types of financial charts, including point-and-figure and three-line break charts.

"You don't want to animate everything, mind you," said Worsfold. But it's nice to have the option, he said. ■

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Elementool's Bug Tracking Adds Unlimited Fields

BY YVONNE L. LEE

Elementool Inc., a service provider that offers Web-based bug-tracking, time-management and help-desk software, in April added a premium service with more storage and the ability to create an unlimited number of report fields.

The New York company's offerings compete against Tortuga Technologies Pty. Ltd.'s OziBug service and BugCentral Inc.'s BugCentral.com, as well as against bug-tracking software that isn't remotely hosted, said CEO Yaron Sinai. Elementool can help improve communication between research and development and quality assurance and customer support because it has both bug-tracking and help-desk services, Sinai said.

"Some customers wanted an option to add more fields," Sinai said.

For example, he said, some companies may have products running in complex environments or in more than one operating system and may need to track the specific parameters of

where the bug was found.

"With the other packages, you can have 19 fields. In the premium package, you can add as many as you want."

Another feature of the US\$79 per-month premium service is that it has a message board for communicating about the status of bug fixes.

"Sometimes, [organizations]

have their teams in different locations and they need to communicate," Sinai said. "By using the message board, you can type the messages that you want to be seen by the other teams."

Elementool Bug Tracking 4.5's premium package will let users upload larger files. The professional version, previously the high-end model, will let

users upload attachments as large as 250KB. The premium version will let them upload files of 1MB.

Two other new features in the premium service are the ability to customize information that appears on the welcome page, and dynamic reports that make changes to the status of several issues—bugs or potential

problems—at the same time.

In addition to the premium version, Elementool offers a free basic version that is supported by banner ads and stores as many as 200 issues, a \$39.99 per month advanced version that will store as many as 2,000 issues, and the \$59.99 pro version, which stores an unlimited number of issues. ■

RADVIEW'S TESTVIEW COMBINES PERFORMANCE, LOAD TESTS

BY YVONNE L. LEE

RadView Software Ltd. is shipping an integrated Web testing suite that includes new releases of the company's functionality-testing and load-testing software, together with a console for managing the tests.

The suite, called TestView, includes the Burlington, Mass., company's WebFT functionality testing, WebLoad load testing and TestView Manager, a new centralized test management module.

"It encompasses our entire product solution," said Deb

Kablotsky, director of product management.

TestView Manager provides test management, reporting and the ability to define and to run an unlimited number of test scripts on a distributed environment from a single location. It can execute multiple scripts on multiple platforms.

"It's going to tell you with very deep granularity how your application is performing on the inside," Kablotsky said.

TestView's versions of WebFT and WebLoad include new tests for distributed denial

of service (DDoS), .NET and Web services. The DDoS testing is designed to ensure that Web applications can handle the required load during a denial-of-service attack. The feature provides a view of a Web application's resistance and resiliency to such attacks by using actual attack tools and known code. The software provides a list of real-world DDoS attacks and is designed to be used in both pre-production and production environments. It also provides performance statistics such as packets per second.

Additional Web services testing support includes interoperability testing for Microsoft and Apache Axis clients and new support for complex data types through a Web services testing wizard.

The product suite is available now with pricing beginning at US\$26,000, depending on the number of virtual or simulated users.

The product suite will run tests against Apache, IIS and J2EE-based application servers, as well as DB2, Oracle and SQL database servers. ■

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A Thousand Words Demand a Picture

Hosted service from start-up N8 Systems transforms requirements into diagrams

BY DAVID RUBINSTEIN

Business analysts like to create application requirements in written form. Software architects like to conceive those requirements in pictures.

It's the classic business/IT divide that companies have been bemoaning for years. Enter N8 Systems Inc., which in late April introduced a hosted service that takes Word documents describing business processes and creates UML Use Case and Activity diagrams from them automatically.

"Most people go from model to code; few people go from requirements to model," said David Hartford, president and CEO of the Berkeley, Calif.-based start-up. He explained that with tools such as Borland's TogetherControl Center and IBM's Rational Rose, the

requirements must be converted to Use Case and Activity diagrams manually. Thus begins the back-and-forth between business and IT that consumes a lot of time and energy before actual application modeling and code generation can even begin.

N8 has created what Hartford called a new way of doing syntactic processing that fits into the rubric of natural language processing. "We move from that to mathematics rapidly," Hartford said, explaining the technology is awaiting patent approval but declining to elaborate further.

N8 Archetype 1.0 is a hosted client/server application—the client costs US\$995 per seat—that presents a split screen on the client: One side is a Word document, and the other is a Visio palette. (When asked if

N8 had Microsoft's blessing to create the tool, or had become a partner, Hartford said, "Microsoft is not unaware of us, but there's no special relationship there.") Because the tool shows flaws in the requirements as the diagrams are created, process and workflow issues can be resolved quickly.

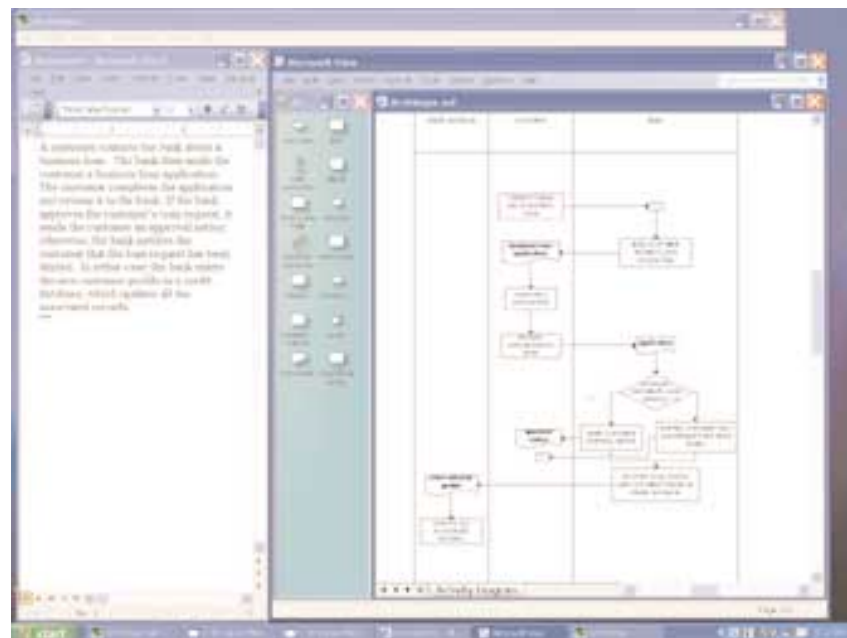
Also, something as seemingly minor as calling someone an applicant in one place in the requirements, and a customer in another place, can be resolved by using Word's search-and-replace function, which automatically would update the diagram, Hartford said.

For now, the tool works

only by transforming Word documents into Visio documents, not the other way around. "The hard part is going from informal to formal, from implicit to explicit," Hartford answered, saying N8 focused on solving the more difficult problem in the first release and hinting that reverse engineering might be built into subsequent iterations. Also, a developer wish-

ing to automatically create apps from the Visio models must first export the model to a UML tool with a code generator, he acknowledged.

Although the application service provider model has lost much of the luster it had in the late 1990s, Hartford said N8 is committed to hosting the service but will work with companies wishing to install the software internally. ■



A split screen interface lets N8 users work either in Microsoft's Word or Visio applications.

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ITAA STUDY

◀ continued from page 5

article did not specifically refer to the March 30 ITAA study, but it said among global outsourcing studies, "there is a great deal of partial telling of the story," particularly given the current U.S. political season. It also noted

that because most economists were reared on the theory that free trade is the basis of all economic growth, they may be biased toward the long-term view that global sourcing benefits U.S. IT workers.

The ITAA study said that by lowering inflation and raising productivity, offshore IT soft-

ware and services outsourcing increased the wages of U.S. workers by less than two-tenths of 1 percent in 2003. Wages are expected to be higher in 2008 by less than half a percent. It also reported that from 2000 to 2003, only 104,000 jobs were lost to offshoring, which represents only 2.8 percent of the

total U.S. IT software and services jobs. "But there is so much hype [surrounding this issue]," said Miller. "If you watch Lou Dobbs every night, of course you think [the number is much higher than that]," he said, referring to the CNN anchor of "Lou Dobbs Tonight," which includes a nightly segment

called "Exporting America."

From 2000 to 2003, 372,000 U.S. IT software and services jobs were lost overall, the study found. "Most of those had nothing to do with offshoring," Harris said. "The dot-com bubble burst. There was a general recession."

'SHOCKING TO ME AT FIRST'

When former development manager Joseph Blank worked for the long-term care insurance division of General Electric Financial, in San Rafael, Calif., he was asked in 1999 to farm out 75 percent of the company's application development projects to outsourcing firms in India, including Satyam Computer Services Ltd., in Secunderabad, and Patni Computer Systems Ltd., in Mumbai. "It was shocking to me at first," recalled Blank, now president and chief operating officer of software marketing firm Virsalent Inc., in San Francisco. "But we could get people for a third of the cost," he said.

While the ITAA study touts "the ability to efficiently stage 24x7 operations" as a benefit of offshoring, Blank said it's difficult to take advantage of the round-the-clock work force.

"I've been managing software development since 1984. I'm used to having a close-knit relationship between the business unit and the development team," said Blank, whose company is developing PerTerra, a software product designed to help manage offshore development projects. It's not easy to communicate when there is only a one- or two-hour window each day when both sides of the hemisphere are at work, he said.

The business analysis and requirements phases of development do not lend themselves to international outsourcing, acknowledged Patni's senior vice president of sales and marketing, Mrinal Sattawala. "But the coding and testing phases can be effectively managed offshore," he said.

Blank noted that there are cultural differences to contend with as well. The Indian developers he worked with were dedicated and committed. "But they wouldn't say 'no' to me. They would go ahead and code the way I suggested, even if it was inefficient," he said. By contrast, the coders who worked for him at GE were vocal and uninhibited. "They would say, 'Joe, that's a stupid way to do it. I'm not coding it that way,'" said Blank. ■

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TeamTrack for ChangeMan ZMF Missing Unix Link

BY EDWARD J. CORREIA

Add one to the list of software development projects running late. Serena Software Inc. this month was set to release a Solaris edition of TeamTrack for ChangeMan ZMF, but now says it will be July before Unix developers see that version of its browser-based incident-tracking software that links with IBM Z-series mainframes.

TeamTrack for ChangeMan ZMF permits organizations with Serena's mainframe change management system to use TeamTrack to initiate and track changes stored on a mainframe. The company in late March released a Windows edition.

According to TeamTrack product manager John Keller, the delays are due to unforeseen porting complexities. "We're working through some difficulties moving drivers from a Windows Web server to a Unix Apache Web server, but we're making progress."

UNIFACE 8.4 CAN CONSUME WEB SERVICES

BY JENNIFER DEJONG

Improving Web services support, Compuware Corp. last month announced a new version of its unified development environment.

Uniface 8.4 builds on 8.3, which allowed developers to expose Web services to the outside world. "Now you can go the other way," said Uniface product manager Adrian Gosbell. Version 8.4 can consume Web services developed in technologies compliant with the W3C Web services specification, he said. "The amount of plumbing code you have to write is minimal."

In addition, 8.4 provides developers with performance information about deployed applications and offers new graphical controls for constructing user interfaces, including a command button, picture widget and check box.

Pricing for Uniface 8.4 starts at US\$4,000 per developer. Now that the product provides two-way Web services support, the company is positioning it as an environment for developing service-oriented architectures. ■

Pradeep Bhanot, a Serena product marketing manager, said the benefit of joining the two is that it lets users in any enterprise department link to the software development pro-

cess from the origin of the change request through to the delivery of the change.

Security built into TeamTrack permits varying levels of access, with a few limitations.

"You can't edit and compile code, but you can authorize code to move from development to testing and deployment or to a freeze process."

TeamTrack for ChangeMan

ZMF for Windows servers costs US\$900 per user, and is a free upgrade for current licensees of TeamTrack 6.11, a maintenance release sent out in April that included the ZMF connector. ■



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InstallShield's Generation X

Combines DevStudio, MultiPlatform into single environment

BY EDWARD J. CORREIA

Draw an X through two products on InstallShield Software Inc.'s price sheet. As of May 3, the installation tools market leader is

dropping DevStudio, its flagship install builder for Windows, along with its MultiPlatform edition for non-Windows apps, in favor of InstallShield X, a next-

generation product that it says merges the features of both tools and adds a few new ones.

Product manager Bob Corrigan said the move toward a sin-

gle tool was in response to a shift in market forces. "Developers today want to be able to send their apps to as many places as possible from one tool. And

rather than forcing them to buy multiple products with dissimilar IDEs and usage, we wanted to simplify the experience."

To that end, InstallShield X (pronounced "ten") includes a visual dialog editor that Corrigan said presents a common interface across Java, Linux and Windows development hosts for all target platforms, including servers and mobile devices.

Also new is a prerequisite editor, which permits developers to define conditions that must be present on the target machine to ensure proper operation of the app. "Before, you could check to see if various things were on the system, such as IE 6 or a Java 2 runtime, and program your own installscript code to install them," explained product manager Tyler Robinson. "Now we've made it accessible from one view" and eliminated the need for programming, he said.

Corrigan described Events View, a new feature, as an interface for embedding events-based logic within installation scripts. "During an installation, if I want to ping a server or check for a certain set of conditions, I can now create, modify and extend those installation events and insert them at different places in the setup flow," he said, adding that this helps installations adapt to local conditions and can avoid surprises during an installation that could lead to installation failure.

InstallShield X also improves the ability to preconfigure SQL applications by importing local database schema and data as part of an installation process.

"Lots of people need to configure Web database servers as part of getting their application to run. We're now taking care of that for you," said Robinson.

This also could be done previously, but it required custom code, he added.

InstallShield X targets Linux, Mac OS, OS/400, Palm OS, Unix, Windows and Windows CE. InstallShield X is a free upgrade for DevStudio maintenance subscription holders; upgrade prices for regular licensees start at US\$599.

As was DevStudio, the InstallShield X Pro is priced \$1,199 per seat; MultiPlatform was formerly priced at \$2,499. The Premier edition at \$1,995 adds a notifier that lets application users know when an update to their app is available. The full service is required to actually conduct the updates. ■

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JAVA TOOLS

◀ continued from page 1

offer "a way to get people on your platform," said Shawn Willett, analyst with Sterling Va.-based Current Analysis. "The independent tools that don't have an app server, they can run on specific platforms. [For example,] JBuilder is Borland's tool, and they have optimized it for Borland's server, but they also have some things that optimize with BEA's WebLogic."

BYE, BYE, VI?

In the meantime, representatives of IBM and BEA are looking to attract developers who don't use any development environment.

IBM's group manager for desktop products, Eric Naiburg, said that one-third of all developers don't use an IDE at all.

One way that BEA plans to do this is through a free tool called EJBgen, available on the company's dev2dev Web site. EJBgen creates deployment descriptors that developers normally would have to write using a text editor. While EJBgen will not necessarily move developers to the WebLogic Workshop environment, it does generate proprietary code used on the WebLogic application server.

"The intent of Workshop is to get more people to work on top of WebLogic," Naiburg explained. "We are making the platform more accessible for everybody."

Sun's vice president for software marketing, Joe Keller, said these developers use editors such as vi and emacs instead of an IDE because the IDEs don't implement features in the latest specifications and standards quickly enough.

However, BEA's Renaud said that his company follows the opposite order for introducing features and adhering to standards. First, it introduces proprietary features in its products and then submits those proprietary features to standards bodies, he said.

Critics have pointed out, though, that this defeats the ability of Java apps that use those proprietary features to be written once and deployed anywhere, which was Java's original promise.

FREE COMPLIANCE KIT

Sun announced at the show a free kit for developers to test whether applications comply with the J2EE standard. In its

official description of the kit, Sun says one feature is a "Source code scanning for incompatible proprietary APIs." When Sun's Keller asked BEA's Renaud about the fact that BEA's WebLogic uses such extensions, Renaud pointed out that developers can choose to use the extensions or to simply use those

features that are standard.

Before either the application server or development tools discussions, Sun announced that its Java Application Server Platform Edition 8 is compatible with J2EE 1.4. In addition, IBM's WebSphere Application Server Technology for Developers Version 6, Oracle Applica-

tion Server Containers for J2EE 10g Developer Preview, Tmax Soft Inc.'s Jeus 5.0 app server, and Trifork A/S' T4 Application Server have all been certified as meeting the standard.

COMING NEXT: J2EE 1.5

Work began on the next Java server specification, J2EE 1.5,

earlier this month with the formation of a Java Community Process expert group, led by Bill Shannon of Sun. BEA, IBM and Oracle are also expert group members. The rough schedule proffered by the expert group indicates a first public review in September, and a final release in July 2005. ■



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Configuring Your RTOS Using Queuing Calculations
Object-Oriented Design for Platform Independence
Mastering the Interrupt Architecture of Windows CE
Usability Inspections
Principles of Model Driven Architecture
Using Posix Threads
Implementing Better Security in Wireless Embedded Systems
Coping With Changing Requirements
Programming Considerations: Palm OS
Safety-Critical Development in Java
Debugging Tips and Tricks for Windows CE
Linux, the Law and Embedded Systems: Licenses and Best Practices
Embedded Design: How Much Does Processor Speed Matter?
Writing Device Drivers for Embedded Linux
Choosing a Real-Time Operating System
Integrating Web Services and Wireless Capabilities in Embedded Systems
Requirements Analysis for Embedded Systems
Optimizing Java Performance for Embedded Systems
Designing and Optimizing Windows CE .NET for Real-Time Performance
Programming Considerations: Pocket PC
Minimizing Context Switch Times in Large Register Set Environments
Real-Time Java Development Using J2SE APIs
Software Architecture for Networked Digital Media
Real-Time Performance in Embedded Linux: Myths, Legends and Facts
System Design: Architectures and Archetypes



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of information is driving the need to connect
and share islands of information..."**

— The Information Habits of Embedded Engineers,
VDC, January 2004

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Larry Constantine ★ Stephen J. Mellor ★ Michael Barr
Robert C. Martin ★ Karim Yaghmour ★ And many more!



Stephen J. Mellor

Stephen J. Mellor is an internationally recognized pioneer in creating effective engineering approaches to software development. In 1985, he published the widely read Ward-Mellor trilogy *Structured Development for Real-Time Systems*, in 1988, the first books defining object-oriented analysis, and in 2002 *Executable UML: A Foundation for Model-Driven Architecture*. His latest book, *MDA Distilled: Principles of Model-Driven Architecture*, was published in 2004. Stephen is also the chairman of the IEEE Software Industrial Advisory Board.



Larry Constantine

Larry Constantine, Chief Scientist at Constantine and Lockwood Ltd., is one of the pioneers of software design whose work in usage-centered design includes several patents in human-machine interaction. Larry has published more than 150 articles and papers plus 16 books, including the award-winning *Software for Use* (Addison-Wesley, 1999), written with Lucy Lockwood; *The Peopleware Papers* (Prentice Hall, 2001); and the software engineering classic, *Structured Design* (Prentice Hall, 1979), written with Ed Yourdon.



Michael Barr

Michael Barr, former Editor-in-Chief of *Embedded Systems Programming* magazine, is the founder and president of Netrino LLC. Michael has spent more than a decade developing embedded software, device drivers and system-level software. He has written two popular books, *Programming Embedded Systems in C and C++* (O'Reilly & Associates), and the *Embedded Systems Dictionary* (CMP Books) with Jack Ganssle, and is the author of numerous articles and technical papers. Michael holds B.S. and M.S. degrees in electrical engineering and lectures in the Department of Electrical and Computer Engineering at the University of Maryland.



Robert C. Martin

Robert C. Martin has been a software professional since 1970. He is CEO and founder of Object Mentor Inc., a training, mentoring and consulting company specializing in process improvement and object-oriented software design. Editor-in-Chief of *C++ Report*, he is the author or co-author of six books, including, with James Newkirk, *Extreme Programming in Practice* (Addison-Wesley), and *UML for Java Programmers* (Prentice Hall). Bob has published dozens of articles in various trade journals, and is a regular speaker at international conferences.



Karim Yaghmour

Karim Yaghmour is founder and President of Opersys Inc., a company that provides services for building embedded Linux systems straight from source, based in Montreal, Canada. Karim is a widely recognized figure in the open-source community. He is the author of the most popular book on Embedded Linux according to Amazon.com, *Building Embedded Linux Systems* (O'Reilly). Karim is also the maintainer of the Linux Trace Toolkit, and has been selected as a Special Supporting Member to the CE Linux Forum.

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Sonic's Claims Go Boom

BY EDWARD J. CORREIA

With the mid-April release of SonicMQ 6.0, Java middleware developer Sonic Software Corp. claimed to be the "first to deliver continuous availability for enterprise messaging."

Not so fast, says SpiritSoft Inc. Seemingly moments after Sonic's announcement hit the wires, SpiritSoft rebuffed it, declaring that its SpiritWave Real-Time ESB messaging server has been available and in use for nearly two years.

So who's a developer to believe?

Rajeev Kotyan, SonicMQ principal product manager, maintained that what makes version 6 unique is a lack of dependence on any specific hardware or operating system to provide the replication. "We

are the first to provide continuous availability entirely within the messaging infrastructure. SpiritSoft depends on the hardware to do replication."

Not true, said SpiritSoft CTO Robert Davies. "Ours is completely 100 percent Java software," and is therefore also hardware-independent.

SonicMQ 6.0, which is available now at US\$15,000 per server pair per processor, keeps JMS applications running using a system of primary and secondary message brokers. Secondary brokers spend all their time replicating the primary, Kotyan explained, so that if the primary's hardware or operating system fails, the secondary broker transparently takes over the application.

SpiritSoft CEO Kevin Gibbs

said that while his company's position is usually not to comment on competitor declarations, this time was different. "Claiming you're the only one with fault tolerance, auto recover and failover when we've got clients that have been using it for some time—that's taking things too far," he said. Davies added that SpiritSoft's main differentiators have long been fault tolerance and failover. "Clearly Sonic knows that, because we come head-to-head with Sonic in a number of accounts."

In the end, Kotyan conceded that all software relies on hardware. High availability, he said, "is a combination of an entire environment, hardware, operating system and messaging system. We depend on them to stay alive." ■

SARBANES-OXLEY

← continued from page 1

The former addresses the document retention aspect of the legislation, which requires companies to retain for a still-to-be determined period of time all documents pertaining to sales transactions and other key business activities, such as meetings with partners. The latter applies to how a company runs its business. "But Sarbanes-Oxley is not a new tool category," said Ames.

While the document management tools may be marketed to developers, they are used by CFOs and their audit partners. The idea behind them is to provide a systematic way for companies to store and retrieve documents that regulatory authorities, such as the U.S. Securities and Exchange Commission, might request.

"Some companies will meet this requirement using Manila file folders in cardboard boxes," said McGartland. Meridio's tool of the same name automates that process, enabling business users to check relevant documents created in Word, Outlook and other Microsoft applications into a central repository.

CHECKS AND BALANCES

Document retention is just one aspect of Sarbanes-Oxley, section 404, which requires companies to include in annual reports filed after Nov. 15, 2004, "an internal control" report.

Internal controls also apply

BEYOND DOCUMENT MANAGEMENT AND BPM

Vendors of digital signature software and software configuration management (SCM) systems aren't jumping on the Sarbanes-Oxley bandwagon just yet, but both are likely to get in on the act.

Legislative-driven compliance initiatives, such as Sarbanes-Oxley, will bring digital signatures to the forefront, predicted Chuck Ames, CEO of business process management (BPM) software company Oak Grove Systems Inc. "The issue of establishing identity and nonrepudiation is something we take for granted with paper," he said. But when business processes are executed electronically—and BPM software creates a Sarbanes-Oxley audit—the ability to digitally sign documents in a verifiable way will be critical, he added.

Oak Grove does not sell digital signature software, but its BPM software integrates with digital signature offerings from companies such as VeriSign Inc., in Mountain View, Calif., said Ames.

Also useful in helping companies comply with legislative issues are SCM systems, said Dave Martin, vice president of product management at software configuration management company MKS Inc., in Waterloo, Ontario.

Such systems record and audit changes programmers make to applications they write "right down to the line of code changed by the specific developer," said Martin.

"Sarbanes-Oxley will bring SCM into the corporate domain," he predicted.

—Jennifer deJong

to how a company carries out business processes. "You have to prove you have checks and balances in place around business processes and that those checks and balances are working," said Dushyant Pandya, director of strategic technology at business integration developer TIBCO Software Inc., in Palo Alto, Calif.

Some companies are documenting processes manually. But a BPM engine can be configured to generate reports that show how business data moves in and out of applications, said Daryn Walters, vice president of world-

wide marketing and strategy at HandySoft Global Corp., a BPM software company in Vienna, Va.

"If you change a process, the software can show you how that affects Sarbanes-Oxley," added TIBCO's Pandya.

AMR's Hagerty agreed that BPM software can play a key role in helping companies comply with Sarbanes-Oxley. But he said developers have to factor in the marketing hype. "'My technology is an integral part of what you are going to do in the long run.' That is the marketing angle for BPM." ■

News Briefs

MORE UPGRADES

← continued from page 6

tication. ASE 12.5.2 also includes a smart SQL cache and allows database backup compression and password-protected backups . . .



Version 2.6 of **SOAPtest**, the Web services tester from Parasoft Corp., can check message interoperability with the WS-Security specification and the SOAP Conversion Protocol . . .

Datawatch Corp. has updated its **VortexXML Designer** data conversion software. Version 3 supports the XSD schemas for loading data into the mapping tree, can derive XML schemas based on analysis of input data, can suppress nonrequired elements to reduce file size, and has an element search feature for large schemas and DTDs. The new release, at US\$599 per seat, also has improvements to its analysis and data-verification features . . . **Shunra Software Ltd.**'s May 10 release of its **Stratus** network emulation tool adds support for the IPv6 protocol as well as the ability to record and play back actual network conditions. It also lets users share network scenarios. The company is repositioning Stratus



as a unit testing tool for distributed code in the hopes of penetrating the developer market . . . **AutomatedQA Corp.** is set to release version 3.05 of its **AQTime** performance profiler and memory debugger that combines its Win32 and .NET versions, integrates with Visual Studio. NET and groups common profilers into single groups to simplify the user experience. A new tool, **Automated Build Studio 1.0**, is expected to be released in mid-June as a visual environment for creating process automation. Dozens of built-in operations, such as File and Directory or Read/Write, are included, along with support for compilers from Borland and Microsoft. It too can integrate with VS.NET . . . Version 3.15 of **SQL Bundle**, a database software suite from Red Gate Software Ltd., includes a new version of the company's **SQL Compare** utility that can fix problems with dependency information within databases. The suite also includes new selective data migration features within an updated version of the **SQL Data Compare** tool. Pricing starts at US\$350 per user . . . **Popkin Software Inc.** will add support for **The Open Group Architecture Framework** version 8 to version 9.2 of its **System Architecture** modeling software, expected to be released in June. TOGAF describes a method and framework for developing an enterprise architecture; the eighth release adds methods for capturing an enterprise's architectural vision and accommodates business modeling techniques.

PEOPLE

In the wake of software chief **Jonathan Schwartz's** promotion to president and COO, Sun Microsystems Inc. announced other management changes. **John Loiacono** takes Schwartz's previous job as EVP of the software group; he had been SVP of Sun's operating platforms group. **Rich Green**, VP of programming tools, has left Sun and joined Cassatt Corp., a start-up



SCHWARTZ focused on making data center management software, as EVP for product development. **Mark Tolliver**, chief marketing and strategy officer, and **Neil Knox**, EVP for volume systems products, have also left Sun. **Anil Gadre** has been appointed interim CMO, and **Brian Sutphin** has been promoted to VP for corporate development . . . **Al Campa**, founder and chairman of Panscopic Corp., a developer of J2EE-based report tools, has stepped down as president and CEO, and will now serve as EVP. He gives those titles to the newly hired **Paul Doscher**, who most recently served as EVP of Thor Technologies Inc., a provisioning company . . . Integration company WebMethods Inc. has hired **Rich Chiarello** as EVP of worldwide operations. He will be heading global sales and service operations; previously, he led worldwide sales at Siebel Systems Inc. . . . **Patrick Ferrell** has been hired as SVP and general manager of VA Software Corp.'s media division, OSDN. Ferrell had been a magazine and trade-show producer, and founded GamePro magazine and the E3 Games Conference. He replaces **Richard French**, who is leaving the company. OSDN publishes the Slashdot and SourceForge Web sites. ■

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ICEsoft Spun Out of the Tornado

Company claims its browser usage in enterprise apps outpaces embedded

BY EDWARD J. CORREIA

Once acquired by Tornado tools maker Wind River Systems Inc. for its embedded development platform, ICEsoft Technologies Inc. is on its own again, and finding that demand from the enterprise is outstripping embedded by a factor of 8 to 1.

ICEsoft CEO Brian McKinney said the enterprise is using his company's all-Java ICEbrowser thick-client development platform primarily in three ways: as a simple rendering engine for display and navigation of HTML content, such as help files or other application data; as a smart Web client for rendering secure or dynamic Web content; and as a browser engine for Web content crawling, extraction and manipulation.

On May 3, the company released ICEbrowser 6.0 SDK, an update to its browser-based application development environment that now delivers an all-Java PDF reader, numerous Cascading Style Sheet (CSS) 2.0 enhancements and support for Macromedia's Flash plug-ins.

Among the most significant enhancements in version 6, according to Robert Lepack, director of business development, is the work done in CSS, which controls page rendering. "Imagine having English and Arabic next to each other on the same page. Trying to display one language horizontally and another vertically took some really sophisticated programming," he said.

A starting price of US\$6,000 per seat plus royalties includes an all-Java browser and development tools that work with Sun's JDK 1.1.8 or newer. Lepack claimed that a key competitive advantage is a client footprint of between 500KB and 1,500KB, compared with upward of 20MB for Netscape and Internet Explorer (IE). "It's easier to support a 1MB Java client than Mozilla or IE, which is controlled by someone else." Clients require no server software, just a JVM. "Having a small browser is key, because

the client can be downloaded in a few seconds."

Applications also can be deployed with static data sets on a CD with data presented through a servlet container and with the PC acting as its own server, Lepack said. As an example, he described one customer in the automotive service industry. "In thousands of garages, old greasy computers are not connected to anything. Those companies get updated CDs every two or three months." The same data files also can be distributed to connected clients via server, so

there's no need to develop and manage multiple data files for different client types, he said.

UNBOXING EMBEDDED

McKinney believes one factor generating demand for the solution is Linux. "Linux is forcing people into a heterogeneous environment, hence the Java browser."

Another reason is control. "What happens is that the client changes their IE version and suddenly your application doesn't work." McKinney said he finds that many developers share his anti-Microsoft senti-

ment and the belief that IE will one day be subsumed by the Longhorn stack. "Microsoft's vision is to further intertwine the browser with the operating system. Longhorn and Avalon are a threat to J2EE, and will cause [developers] to embrace non-IE solutions. We're small, and we're not Microsoft."

McKinney worked for Wind River after that company acquired AudeSi Technologies Inc., which he founded, in 2000. He led a consortium of investors to purchase ICEsoft from Wind River in January 2002. ■

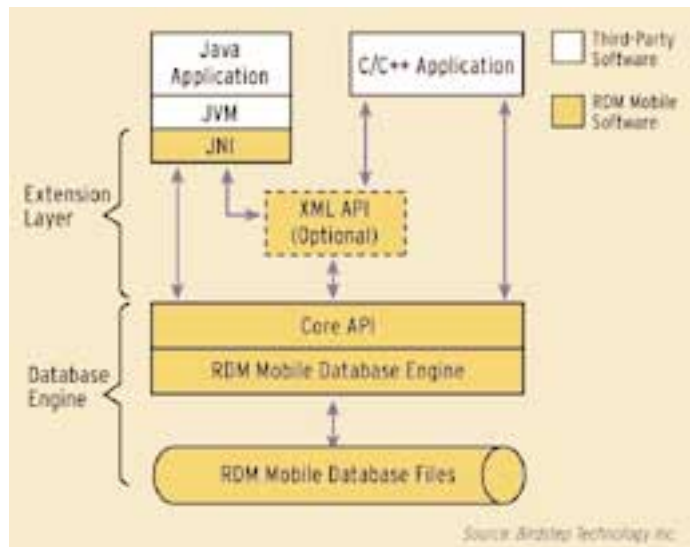
Birdstep Aligns RDM Mobile With Embedded

BY EDWARD J. CORREIA

Birdstep Technology Inc. is getting its ducks in a row.

With the mid-April release of RDM Mobile 3.0, the Norway-based database developer has aligned the mobile version of its relational database engine for C and Java with the Embedded edition, which it says will ease migration when moving applications from one database to another.

"We are trying to make the databases more compatible across the product lines," said Steve Wampler, Birdstep's database product manager. "We decided to take our standard engines and shrink them down and turn them into mobile databases." RDM Mobile is designed for resource-constrained devices



Birdstep is abandoning its native XML database in favor of an XML layer.

such as aerospace systems and telematics.

In this release, the company reverses a move made in Nov-

ember 2002 in RDM Mobile 2.0, which introduced an XML-native database. Instead, an XML layer that permits

import and export of the common data exchange format has now been built in. "In going with the standard engine and an XML layer, we maintain our network-based engine model and still have the ability to consume XML documents," explained Wampler.

Available now for Linux, QNX, Solaris and embedded Windows targets, RDM Mobile 3.0 occupies about 225KB of device memory, according to Wampler.

Birdstep is adding an XML layer to its RDM Server, now in beta and expected in July, Wampler said. Its RDM Embedded edition, which adds mirroring and a SQL interface, will be available with an XML layer by the end of this month, he said. ■

METROWERKS TOOLS TO PLAY HOST TO LINUX

BY EDWARD J. CORREIA

Developers needing to build, debug and compile an embedded Linux kernel from a Linux-hosted workstation are the target for Metrowerks' release this month of an edition of its CodeWarrior Development Studio IDE for ARM-, ColdFire- and PowerPC-based devices. The company demonstrated the new tool at the Smart Networks Developer Forum in Dallas in late April.

According to Calvin Harrison, Metrowerks' netcom mar-



A visual breakpoint editor eases embedded debugging, claims the company.

keting director, the tool offers unrivaled handling of a developing Linux kernel, and enables

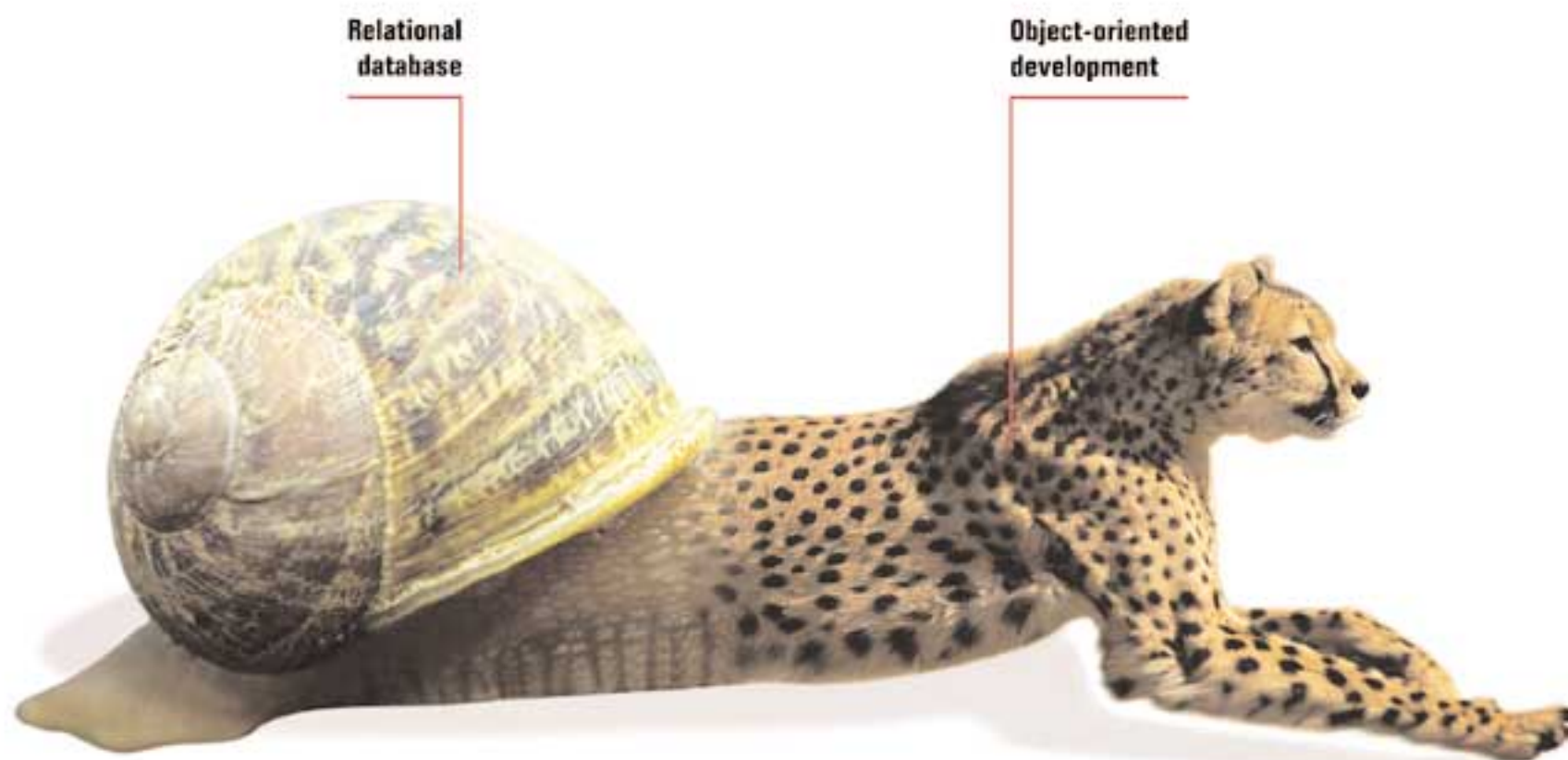
loading of the bootloader and single-stepping through execution of the kernel. And when

services come up, developers can single-step through those, he added. Harrison said that developers can achieve some of the same functionality by patching together tools from multiple sources. Such open-source tools, he said, force developers to switch from one to another, with no clear company to look to if problems arise.

The US\$4,495-per-seat environment supports Linux 2.4.x kernels and flash programming with 150 flash devices, and performs a number of system-

level dependency checks. If a new patch is downloaded, for example, Harrison said the system might alert the developer of a dependency for five others. The Linux-hosted version of CodeWarrior Development Studio also works with PowerTAP, the company's JTAG debugging hardware, permitting developers to manipulate target files and set breakpoints during execution. Together, the two cost \$6,834, including a year of maintenance.

Metrowerks is a subsidiary of Freescale Semiconductor Inc., the newly spun-off semiconductor division of Motorola Inc. ■



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The Best Of the Best

Trying to select a list of the industry's movers and shakers is not an easy task. So many companies are doing truly remarkable things to raise the bar for creating quality software, from design and architecture initiatives to more powerful development, testing and collaboration tools to broader deployment platforms as well as to mobile devices.

Then, too, there are the authors, analysts, consortia, legislators and executives who have influenced the development landscape through their untiring efforts. Perhaps a book was able to clearly define a new development process, or a consortium advanced a specification that the industry rushed to embrace. Maybe a law was passed that forced the industry to race the clock to achieve compliance.

But of those, a few really stand out as leaders and influencers in the industry. Some, of course, are the industry giants, who set the agenda by "owning" the markets in which they live. Others are start-ups that distinguished themselves in the previous calendar year with their ideas and foresight. In one way or another, the editors of SD Times have judged them to be the top 100 companies in plotting a course for the industry to follow. Some of our choices will seem obvious—others may be surprising, even controversial.

The SD Times 100 is broken into 10 distinct

industry segments. Some companies lead in only one category; others are blazing a path in multiple areas. In each of the categories, one company has been singled out for special notice—but like the Academy Awards, the honor is simply in being nominated.

In putting the list together, we considered each company's reputation and products, and also paid attention to how much buzz it was generating in the industry. Did the company set the agenda for its market segment? Did it move forward the craft of software development? Did it force its competitors to respond to its initiatives? Were developers waiting anxiously for the company's newest products?

This time, we also had to consider if companies had enough impact to knock off others that earned a place in the inaugural SD Times 100, presented in the June 1, 2003, issue of the newspaper. Like taking the crown from the heavyweight champion, the win had to be decisive...no split decisions.

So without further ado, here are the companies that we believe set last year's industry agendas. Here is the SD Times 100 for 2004.



MODELING & DESIGN

Telelogic AB

Continues to lead in modeling, with compelling offerings from its Doors and Tau product families; recent moves more tightly integrate its modeling, requirements management and architecture tools.



Anders Lidbeck, CEO

Borland Software Corp.

Popular TogetherSoft tools gain visibility in Borland product line.

Compuware Corp.

OptimalJ shows how to meld modeling, code generation, app testing.

Embarcadero Technologies Inc.

ER/Studio, DT/Studio updates at top of app, data modeling space.

IBM Corp., Rational Division

Despite new Big Blue focus, Rose XDE maintains broad user base.

I-Logix Inc.

Extends modeling through embedded apps, test-based development.

Interactive Objects GmbH

ArcStyler plays to growing awareness of Model Driven Architecture.

Magic Software Enterprises Ltd.

iBOLT merges modeling, portals, business process management.

MetaMatrix Inc.

Continues lonely mission to leverage OMG's Meta Object Facility.

Popkin Software Inc.

Architecture, model tools scale for big, big, big requirements, projects.

COMPONENTS & LIBRARIES

LogicLibrary Inc.

Close collaboration with Microsoft Corp., plus updates and professional services, has increased the visibility and realizable business value of reusable software assets within larger enterprises.



Greg Coticchia, CEO

ComponentOne LLC

Suites, VS.NET bundles offer developers a lot of bang for zero bucks.

Developer Express Inc.

Continues as premier supplier for VS.NET and Borland shops.

Dundas Software Ltd.

Solves data visualization problems with graphs, charts, diagrams.

Infragistics Inc.

Evolving components into new markets, such as Longhorn, Tablet PC.

N Software Inc.

Industrial solutions for industrial challenges like IPv6, SSL, SSH, EDI.

Software FX Inc.

Demonstrates that one charting system can span Java, COM, .NET.

Syncfusion Inc.

Essential goes beyond presentation to add source-level debugging.

Trolltech AS

QSA scripting boosts value of Qt framework in multi-platform world.

Visual Numerics Inc.

IMSL adds math, stats functions, deploys to new chips and platforms.

TEST & PERFORMANCE

Sanctum Inc.

The early leader in security-focused unit-testing tools for enterprise apps, the company sets the pace for a growing market, while also extending the reach and breadth of its own product family.



Peggy Weigle, CEO

Actional Corp.

Web services management extended through Watchdogs, portals.

AutomatedQA Corp.

Enhanced TestComplete innovates in regression, unit, performance testing.

Compuware Corp.

DevPartner eases QA/test across Windows, Java, 64-bit and beyond.

IBM Corp., Rational Division

Broad set of test tools targets bigger applications, large enterprises.

Mercury Interactive Corp.

Best-regarded tool set for load-testing and monitoring Web apps.

Parasoft Corp.

Automated Error Prevention methodology sparks industry debate.

Quest Software Inc.

Takes biggest-picture view of J2EE enterprise app performance.

Segue Software Inc.

Vast array of server test tools, services focus on every app detail.

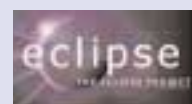
Wily Technology Inc.

Introscope leads in tracking, remediating app and infrastructure issues.

TOOLS & ENVIRONMENTS

Eclipse Foundation

The second release of the Eclipse IDE, and robust support from a wide range of industry contributors, continued catapulting the framework higher-and deeper-into the Java and Linux universes.



Skip McGaughey, Chairman

Altova Inc.

Upgrades to XML Spy and new apps refreshed leading XML tool set.

Apple Computer Inc.

Look for other dev tool makers to follow where Apple's Xcode leads.

BEA Systems Inc.

WebLogic Workshop continues as top visual J2EE app builder.

Borland Software Corp.

C#Builder all but flopped, but Enterprise Studio for Java still rules.

Intel Corp.

Source for benchmark-busting C++ compilers for Windows, Linux.

JetBrains Inc.

IntelliJ IDEA promotes refactoring, takes Java world by storm.

Macromedia Inc.

Studio MX brings rich client applications into developers' suite spot.

Microsoft Corp.

For many reasons, Visual Studio remains the must-have .NET dev tool.

SlickEdit Inc.

Eclipse plug-in helps popular code editor grow into full-fledged IDE.

COLLABORATION

Serena Software Inc.

A big player grew bigger, thanks to its acquisition of TeamShare and enhancements to TestTeam that incorporate its innovative SAFE vision for applying consistent processes across development teams.



Mark Woodward, CEO

CollabNet Inc.

SourceCast bottles a mature system grown in the open-source world.

IAM Consulting Corp.

Leads in promoting JXTA peer-to-peer technology—even more than Sun.

IBM Corp., Rational Division

ClearCase is still clear winner for many change management users.

Merant Inc.

PVCS family remains the industry's change-management flagship.

MKS Inc.

Buffed-up Integrity Solution eases management of big development projects.

Perforce Software Inc.

Straightforward technology, affordable price win many SCM friends.

Seapine Software Inc.

Tighter integration builds strong bug-tracking, SCM, testing solution set.

Telelogic AB

New Doors features make gathering requirements truly collaborative.

VA Software Inc.

Updated SourceForge packages best practices for team development.

DEPLOYMENT PLATFORMS

JBoss Inc.

Two years ago, the company was an obscure open-source developer eclipsed by Apache; today, it has the hottest J2EE app server in town, zooming from zero to 60 with happy customers and new investment.



Marc Fleury, CEO

Advanced Micro Devices Inc.

Chip maker's AMD64 architecture rocked, roiled 32-bit, 64-bit worlds.

Apple Computer Inc.

A serious enterprise contender thanks to Panther, Java and Xcode.

BEA Systems Inc.

WebLogic 8.1 builds on strength with service-oriented architecture (SOA).

IBM Corp.

Enhanced WebSphere and Java/Linux on T-Rex big iron define leader.

Macromedia Inc.

JRun, Flash Remoting embed technologies deep within data center.

Microsoft Corp.

Despite legal woes, fends off competitors with .NET Framework 2003.

Novell Inc.

Forget NetWare: Now a Linux powerhouse with a powerful agenda.

Oracle Corp.

While others were talking about grids, Oracle actually did something about them.

Sun Microsystems Inc.

Late with J2EE updates, but lower software pricing raised the bar.

INTEGRATION & MIDDLEWARE

Sonic Software Corp.

An early leader in Java-based message queuing, the company had technological success with the Enterprise Service Bus and set the pace for the rest of the integration infrastructure industry.



Greg O'Connor, President

Actional Corp.

Orchestration, proxy server enable serious Web services deployments.

BEA Systems Inc.

WebLogic Integration, Liquid Data combine diverse apps, data.

ClientSoft Inc.

Pioneer in direct mainframe consumption of Web services.

DataPower Technology Inc.

Innovative XML accelerators, security appliances cut development time.

Fiorano Software Inc.

Solution formerly known as Tifosi leads in SOA-based integration.

InterSystems Corp.

New Ensemble integration suite is both straightforward and scalable.

SpiritSoft Ltd.

Prime mover in Enterprise Service Bus and Java messaging servers.

TIBCO Software Inc.

Enterprise Reference Architecture defines SOA best practices.

WebMethods Inc.

New Fabric integration approach extends reach of Web services, SOA.

DATABASE & DATA ACCESS

MySQL AB

Being responsive to customers pays off, as the updated database engine continues to challenge the established enterprise software giants while entrenching itself into application-specific deployments.



Mårten Mickos, CEO

Ascential Software Corp.

Innovative thinking redefines fast solutions for extract-transform-load.

DataDirect Technologies Inc.

Hot solutions for high-performance data access to 64-bit, ADO.NET.

Embarcadero Technologies Inc.

DBArtisan, PerformanceCenter lead in database testing, security.

iAnywhere Solutions, a Sybase Company

SQL Anywhere Studio advances cross-platform management, synchronization.

IBM Corp.

Extends top-ranked DB2 with Stinger technology, which ties to .NET.

Microsoft Corp.

Windows stack built atop SQL Server 2000, plus OLAP and reporting.

Oracle Corp.

Leading solutions scale from appliances to grids, clusters and beyond.

Pervasive Software Inc.

Found everywhere with highly secure, auditable, embeddable SQL.

Sleepycat Software Inc.

When less is more, tiny Berkeley DB is faster, more reliable than ever.

EMBEDDED & MOBILE

Wind River Systems Inc.

When the top real-time embedded operating system vendor embraces a Linux strategy, everyone takes notice. Wind River's courage, vision and humility might spell the end for proprietary RTOSes.



Ken Klein, CEO

AppForge Inc.

Crossfire presents portable alternative to Microsoft's mobile runtime.

ARM Ltd.

Microprocessor architecture emerging as de facto mobile standard.

Green Hills Software Inc.

RTOS maker boosts SuperTrace Probe with Time Machine analysis tool.

Metroworks

Every platform has its CodeWarrior; no other IDE has such scope.

Microsoft Corp.

.NET Compact Framework, SmartPhone started gaining traction.

PalmSource Inc.

Hardware company spinoff deftly handled tricky BeOS migration.

QNX Software Systems Ltd.

Expanded range of Neutrino RTOS targets broadens platform appeal.

Sun Microsystems Inc.

Branding, tools, updates propelled J2ME into mobile mind share.

TimeSys Corp.

Years of tenacity paid off with JSR 1 Real-Time Java, JTime SDK.

INFLUENCERS

The SCO Group Inc.

The company's legal assaults on IBM and Linux users dominated 2003's tech headlines and shook up the open-source community. No other IT topic inspires such fervent debate, fear, uncertainty and doubt.



Darl McBride, CEO

Apache Software Foundation

Shows leadership beyond Web services with Ant, Axis, Avalon.

Eclipse Foundation

New independence from IBM increases its Java, Linux dominance.

Java Community Process

Continues to set the Java industry specifications, but still Sun-centric.

Open Source Development Labs Inc.

New consortium hired Linus Torvalds, emerged as standard-bearer for Linux.

O'Reilly Media Inc.

Powerful advocate influencing Java, Mac OS X, Perl, PHP, Python.

Paul Sarbanes and Michael Oxley

Even more than HIPAA and Y2K, their act may drive IT investment.

OASIS

Continues to grow in industry influence as owner of key XML specs.

Web Services Interoperability Organization

WS-I Basic Profile started breaking down Web services barriers.

W3C

While seemingly marginalized, remains central to Web standards.

For a complete list of the winners, and a look at those companies that did not repeat from last year, visit www.sdtimes.com/2004sdt100.htm

EDITORIAL

Recognizing Leadership, Innovation

Industry awards are always fascinating to judge, to contemplate, to examine. Some awards are based on fixed numerical rankings, the best-known of which might be the Fortune 500. Others are subjective polls by the members of an organization, such as the 76-year-old Academy Awards, produced by the Academy of Motion Picture Arts and Sciences.

The SD Times 100 awards, now in its second year, falls somewhere between the Fortune 500 and the Oscars. The judges—the editors and writers of the newspaper—draw upon their knowledge of industry trends, developer needs, emerging technologies, market positions and recent innovations to determine the current leaders of the software development industry.

This approach, focused on leadership and innovation, makes the SD Times 100 truly reflective of the companies that are making the biggest wave and the biggest difference to developers today, and are most strongly influencing the future direction of platforms, tools, runtimes and other emerging aspects of software development.

Because the SD Times 100 doesn't focus on numbers—market share, market capitalization, new products announced, number of patents—we can look at the real thought leaders, as well as those who are driving the industry through sheer strength of investment and market dominance.

A big company can demonstrate that it's still on top of the game and setting a broad industry agenda. A small company gaining traction on a great idea can displace a larger, deeply entrenched player that's seemingly stuck in neutral gear.

When examining awards of this sort, or like the Fortune 500, it's always revealing to see who's new on the list, such as Open Source Development Labs, Novell and the Web Services Interoperability Organization.

It's even more revealing to see who's *not* on the current list. Found on last year's SD Times 100, but not on this year's, are 27 companies and organizations. In some cases, companies fell off the list because they were acquired, such as TogetherSoft or Rational. In other cases, we felt they failed to either lead or innovate.

There is no overall top prize at the SD Times 100. The awards aren't ranked, so there's no equivalent to a Fortune 1 company or an Oscar-winning "Best Picture" that can serve as first among equals. Yet if we *were* to recognize a single entity, it would likely be a company that many would prefer instead to ignore: The SCO Group.

It's been a long ride for Caldera, which bought the SCO name and UnixWare assets from the Santa Cruz Operation in 2001. While the company bumbled about intellectual property in 2002, last year it exploded onto the scene with its inflammatory lawsuits. The challenges against the legitimacy of open-source software, and demands that enterprise Linux users buy UnixWare licenses, sparked fevered debate, potentially dampening the industry's enthusiasm.

Will SCO succeed? Will it drive enterprise buyers to Sun's Solaris, Microsoft's Windows or SCO's UnixWare? Do its IP lawsuits protect innovation, or stifle it? Many questions, few answers. Let's see if it's on next year's SD Times 100. ■

GUEST VIEW

DO U.S. PATENTS PROMOTE OR PREVENT INNOVATION?

The United States' patent system is unique because the protection of intellectual property is engraved in the U.S. Constitution. The country's founding fathers had the amazing foresight to ensure that the Constitution protected intellectual property. This is probably one of the reasons why the United States is such a creative country.

The clause in the Constitution that protects intellectual property grants Congress the power to "promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries" (Article I, Section 8).

U.S. patent law builds upon this clause to ensure that if someone creates a good idea, applies this idea to a product, and then applies for and receives a patent, then that person has the right to that invention and any commercial benefits that might stem from it within the designated period of time (as determined by the law). This is intended to promote the progress of science and technology in two key ways.

The first is that the potential for gaining commercial benefit from an invention encourages inventors to develop more innovative ideas and implement them in products.

The other is that the process of the government publishing patent descriptions (submitted in the patent applications) allows the entire community to see what is occurring on the cutting edge of different fields and allows other inventors to build upon the current innovations (provided that if they build upon inventions that are still protected, they obtain the appropriate licensing rights from the inventor).

Essentially, this is a very forward-thinking system that tries to organize how ideas are shared and used to foster innovation. It has served us well for many years, and I believe it is designed well enough to serve us for many more years. I expect that the problems that will arise will stem not from flaws with the original laws, but rather from people forgetting about the details and intentions of the original laws.

When the patent law was designed, there was an implicit assumption that everyone applying for a patent had an idea and had built a product (or at least a prototype) based on that idea. The patent application was supposed to describe how to build a product based on the idea, and it was supposed to be so complete that someone could use the patent description as a blueprint for building the product. This is natural because the intention of patent law was to protect the product.

By nature, this type of patent is a defensive instrument: You write a patent to ensure that your idea is protected, and this allows you to build and sell products based on that idea, as well as license the idea to others who want to build products based on that idea.

However, over the years, people lost sight of the original intention of the patent law, and the concept of patents got twisted. People began thinking that you could have an idea, then patent the idea without ever building a product based on that idea. These patents are called "paper patents," and they are especially widespread in the software industry. Unfortunately, this is really an aberration that contradicts the original concept of patents.

According to the patent law, patents should be written so that others can read the patent, then build the product. However, paper patents are incomplete; they cannot be applied to build a product because the inventors never built products.

Paper patents are dangerous because they are generally written very widely. They are often written to cast a very wide net in hopes that they will trap a large number of people building actual products and force them to pay royalties. This does not advance ideas and contribute to the development of technology; in fact, it restricts real technological advancement. Essentially, paper patents are offensive mechanisms that people obtain in hopes that the court will help them steal money from true inventors.

The U.S. courts could tech-

nically invalidate patents for ideas that were not translated into actual products or prototypes. However, patents are rarely invalidated...very likely because it costs approximately US\$1 million to invalidate a patent. Thus, the most obvious way to reduce the threat of paper patents—having the courts invalidate them—is not the most feasible.

An alternative resolution would be for the patent law to require patent applicants to submit evi-

dence that their ideas are complete and have actually been implemented in products. For instance, for software patents, they could require that each inventor submit the source code that implements the idea that he or she wants patented; the source code could then be protected by the patent office if the inventor did not want it disclosed to the public.

I believe that if these or similar modifications were made to reduce the number of paper patents, the U.S. patent system would be able to better meet its original goal of advancing technology. Like everything else in the United States, this dynamic system will probably equilibrate over time and correct itself.

If Europe tries to adopt the U.S. patent system, I strongly suggest that the European system should operate like a modified version of the U.S. one. In other words, I think it should require every patented idea to be supported by a product, or at least a prototype, that demonstrates its functionality and its completeness. These requirements would eliminate most of the dangerous paper patents that have become all too common in the United States.

After all, most of the current paper patent holders don't have the money, desire or ability to implement their ideas. Their ideas are typically very general and obvious, and the denial of their patents will actually help advance technology more than patent approval would. ■

Adam Kolawa is chairman and CEO of test-tools maker Parasoft Corp.



ADAM
KOLAWA

LETTERS TO THE EDITOR

EXTREME TESTING

I agree wholeheartedly that much more emphasis needs to be placed on quality through testing ["Testing 101: AWOL on the College Campus," April 15, page 1, or at www.sdtimes.com/news/100/story2.htm]. However, I have issues with the entire notion of separate QA groups, and the entire "throw the system over the wall to testing" mentality.

For the past three years, I have been using the Extreme Programming development process. One of its basic principles is that if testing is a good thing, then take it to the extreme. As such, I and the other developers with whom I work write automated unit tests before we write the code. We then write the code to make the tests pass. This happens on a very granular level, i.e., one method in a class, so that we constantly receive feedback on whether our code is working or not. As a result, our code is simpler and much cleaner than when we use more traditional techniques. As a byproduct of this process, we get a comprehensive regression test suite that with the push of a button can verify that nothing is broken. The developers who are working this way have experience that ranges from five years to 20. Everyone is expected to write unit tests, regardless of their experience level.

In addition to this, our team has dedicated testers who perform acceptance testing on our system. Extreme Programming uses an iterative development approach—in our case with two-week iterations. This allows

the testers to focus their efforts on relatively small chunks of functionality, which makes their lives much easier. It also means that any problems are found much sooner than they would be with a traditional testing phase after development has been completed. This in itself is a huge risk-reduction strategy. This approach also allows the customer to see and get their hands on the system very early on in the development process, allowing them to ensure that what we're developing is what they actually need.

The net result is that our system has had four releases to production that have all been on time, on budget, and have had fewer than half a dozen defects reported from the end users. The customer is very happy with this result, and the development team has only had to work minimal overtime.

The concept of the separate QA group and function is a holdover from previous methodologies that have proven themselves to be suboptimal at best. Using agile development processes such as Extreme Programming, we build testing into the process from the very start and are much more effective at delivering high-quality systems. These processes don't eliminate the QA function—they embrace it and integrate it into their team from day one.

Dave Rooney
Principal Consultant
Mayford Technologies

THE BOOK ON VSTO

Larry O'Brien has done an excellent job of briefly covering

all of the pitfalls and benefits of VSTO in a nutshell—particularly the complicated security issues involved in deployment ["NETting Office, VSTO-Style," Jan. 15, page 25, or at www.sdtimes.com/cols/winwatch_094.htm].

The only thing missing is a reference to materials to actually learn how to use VSTO (can't fault him too much for this as there is very little out there that I have been able to find).

If Larry were to write a book, I would be one of the first to buy it!

Scott Busse
Software Developer
West Coast Property
Consultants

BAD DRIVERS

I'm one of the developers of an open-source JDBC driver for Microsoft SQL Server, jTDS (jtds.sourceforge.net). I read your article ["Free Connection Can Be Costly," May 15, 2003, page 23, or at www.sdtimes.com/news/078/special1.htm] and there are a few comments I would like to make.

I very much agree with you on the fact that some database vendors, notably Microsoft, don't care very much about the quality of their drivers. However, most of them (such as Oracle or MySQL) are the complete opposite. That's why you won't find many third-party drivers for these databases.

With Microsoft, the problem is that they are trying too hard to prove that Java is bad and .NET is good. They didn't even write their JDBC driver; they just bought it from Merant and changed the class names.

Another thing, which in fact drove me to write this e-mail, is

that there are open-source third-party drivers. For example, for Microsoft SQL Server there is jTDS, and I have to say that although it doesn't have all the features of a commercial third-party driver, it's very stable (certainly better than the Microsoft driver) and faster than any other driver (which can prove crucial in handling large quantities of data). The problem is that there's no money behind such an effort to promote it in the same way that commercial driver vendors do, so the vendors just ignore them.

As to the first statement in the Security section—"According to some vendors, the free native drivers are inherently insecure"—so are the commercial ones. The OpenLink driver you mention later is not a native driver, but it needs a native driver, and its focus is offering security from outside firewalls (just something different from a native driver, not something better).

Alin Sinpalean

CORRECTION

In the chart accompanying the May 1 Special Report, "Sizing Up the Stacks," the column describing Novell Inc. should have included:

Operating System: Linux, NetWare, Windows, Solaris.

IDE: Novell Extend.

Security: Novell Nsure secure identity and access management. Portal Server: Novell Extend Director.

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What Types of Operating Systems Are Industrial Automation Developers Using?

Industrial automation applications for chemical, paper, pharmaceutical and other such industries often control complex machinery with real-time precision. Industrial automation is a significant employer of embedded software developers.

Despite the recent rise of Linux in consumer and networking infrastructure applications, according to embedded research firm Venture Development Corp., developers in the industrial automation sector tend to be more conservative, and therefore adopt new operating systems and other technologies more slowly.

In its "Embedded Developers' Demand and Requirements for Commercial OSs and Software Development Tools" report, published in March, VDC found that a majority of developers building industrial automation applications still use no RTOS at all, and that almost as many use a commercially licensed RTOS. Only 7.4 percent use a free operating system, which might include Linux.

Source: Venture Development Corp.
www.vdc-corp.com

Free operating system

7.4%

Proprietary in-house

19.9%

Commercially licensed

34.7%

No operating system

38%

DATA WATCH

JBOSS ASSERTS ITSELF

Over the course of years, I have discussed many times the fate of various J2EE implementations—the early lead by BEA, the astonishing charge into first place by IBM, the lamentable decline of Sun, and the on-again, off-again push by database players such as Oracle and Sybase. In the mix were occasional mentions of other vendors, such as Allaire/Macromedia's fine JRun product and other lesser-known platforms. Rarely, however, have I mentioned JBoss. The reason, quite frankly, is that for much of that period, JBoss was just another open-source project.

During the past year, however, as open source has become widely accepted in IT, JBoss has gone commercial and is increasingly showing up on my radar. Private clients now mention that after BEA and IBM, JBoss is the J2EE stack they hear of most frequently. The JBoss project was morphed into a company run by its founder, Marc Fleury. His business model is to offer the J2EE stack and various add-ons at no cost under the lesser GPL license (LGPL) and then charge for support and documentation.

As the product caught on, Fleury did several things right—the most important of which was hiring proven industry managers to set corporate direction. He scooped up Bob Bickel, who previously

transformed a little-known consulting company that had a Java server into HP's erstwhile middleware division. Fleury then went out and got venture capital, as reported in this newspaper in the March 15 issue ("JBoss Goes Corporate for Credibility," page 1).

Along the way, JBoss has become a favorite solution for OEMs that need a Java stack. JBoss is OEM'd by Apple, Borland and Compuware, among others.

For end-user sites, the temptation presented by JBoss is even greater: The product is free. The documentation and support, though, require payment. The first question prospective sites tend to ask is whether the JBoss product can compete with the enterprise features of WebSphere and WebLogic.

JBoss lacks some of the sophisticated features of clustered servers, including advanced caching mechanisms, but the company is actively working on this and other capabilities. In fact, it has just released JBoss Cache, one of the first implementations of JCache, a Java Community Process-mired proposal for caching on J2EE. Due to its large infusion of VC cash, JBoss is likely to eventually have all the enterprise features of its BEA and IBM counterparts. I have

every expectation that JBoss will eventually earn the No. 3 slot in the market behind the two market leaders.

But the path will not be easy, despite JBoss' merits. The article in SD Times I referred to earlier rightly focused on the deficiencies of the company's business model. If support is principally what it's selling, scalability is a serious challenge, and the needed staff is implacably expensive unless offshoring can be worked out.

Either way, it's a model that is not conducive to significant growth or great profitability. Even OEM deals will not greatly improve the picture, that is, if there are many such deals left to be made.

Incremental growth has risks as it lets competitors catch up, and JBoss has competitors.

Among open-source J2EE stacks, there are the Geronimo project, under the auspices of the Apache Software Foundation, and a larger project from ObjectWeb, a European consortium of mostly French companies and institutions. ObjectWeb's JOnAS is mature and constantly being revved. There also are numerous Java containers available in the open-source community, the most famous of which, Tomcat from the Apache Software Foundation, is highly regarded.

While these companies compete with JBoss on products, a new start-up competes on services. The Core Developers Network (www.coredevelopers.com)

was formed by a group of ex-JBoss employees. It provides training, documentation and support for a wide variety of Java technologies, including JBoss.

I believe JBoss will continue to grow despite these adverse market conditions, because it is driven by professional managers and it was the first of these start-ups to get VC funding, which enabled it to build the corporate infrastructure necessary for subsequent growth. It will play the part of MySQL in its relation to PostgreSQL.

Due to better funding and a full company behind it, MySQL is the open-source DBMS to bet on, even though a portion of the market will remain loyally attached to PostgreSQL. Unfortunately for JBoss, it does not enjoy MySQL's dual licensing scheme by which the Swedish firm can obtain payment for its open-source product when customers cannot meet (or abide) stringent licensing provisions. Nonetheless, J2EE stacks require lots of expertise, and so JBoss might be able to thread the needle.

If JBoss permanently takes over third place in the J2EE market, it will validate the model that most open-source companies hope will work: one that is built on free software and paid services. But until it reaches that point, we won't know if the model can be made to work. ■

Andrew Binstock is the principal analyst at Pacific Data Works LLC.

INTEGRATION WATCH



ANDREW BINSTOCK

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WHERE'S JAVA?

Of Microsoft's legal trials and tribulations, the Sun-Microsoft squabble has been the most significant to software developers. Without rehashing eight years of drama or assigning blame, though, I'll simply say that the current no compromise ".NET or J2EE" decision does not serve the best interests of the greater software development community.

Ideally, software developers, languages and platforms would be fungible. Every decision would be based solely on: Which particular strategy will most rapidly and successfully deliver value to the customer? Ideally, I'd have a flying car and a vacation cottage in Palau.

Short of the day when these dreams come true, we have to live in a world where programmers and development managers have to choose sides, running the risk of forgoing the best tools and colleagues. So I wasn't surprised that in the days and weeks after the Sun-Microsoft announcement, the question I got the most was, "Does this mean we're going to see real Java on .NET?" The short answer is, "I doubt it." Such a thing certainly isn't a necessary, or even likely, consequence of the agreement's interoperability aspects.

The agreement certainly lowers barriers to the prospect of the platforms' flagship languages appearing on the other's

VM, and something approaching a compliant cross-platform compiler would be achievable. Strict compliance could falter on something as simple as the length of a datatype or as complex as guarantees relating to garbage collection, but I believe that less than 100 percent compliance can still be immensely valuable.

At the language level, anyone capable of writing a compiler for the Java VM would not be intimidated by the technical aspects of targeting the .NET CLR. More significant are the associated class libraries. Either they would have to be written from scratch (a mammoth undertaking) or there would have to be a very carefully vetted legal right to use some existing codebase.

Clearly, both Microsoft and Sun can move their own codebases onto the other's VM. It's hard to imagine either company embracing the associated risks.

Putting aside the dreams of platform transparency, what are we talking about when we talk about "interoperability"? The immediate examples were about Web services. However, in follow-up conversations, Sun's Jonathan Schwartz seemed interested in low-level APIs.

In a published interview, Schwartz said, "[Developers] can use Web ser-

vices to interoperate, but the problem has been that you need a Ph.D. to figure it out." That's quite a statement; while I agree that the gamut of WS- specifications is daunting, surely the foundation of "passing XML documents over standard protocols" is far less so (see "The REST Is Salient," March 15, page 27).

Schwartz went on to say, "There are probably 10 million developers in the world, and of those, there's a very, very small fraction that are Web services developers," which comes dangerously

close to dismissing the core audience that might be interested in interoperability. The only two sizable markets where Web services are not already of major significance are the embedded systems market and shrink-wrap software. Bully for Sun for having designs on both those markets, but Microsoft interoperability is irrelevant to the embedded market, and can Sun really be looking toward the shrink-wrap on the Java Desktop System for salvation?

Possibly. Schwartz also waxed enthusiastic to Robert X. Cringely of PBS about access to the Windows APIs. Cringely blasted the enthusiasm (www.pbs.org/cringely/pulpit/pulpit20040415.html) from a business standpoint. From a technical perspective, I'm equally appalled. I'm not sure of the route by which the Java Desktop System can

achieve world domination, but I'm sure it doesn't involve circling back and getting more insight into Win32's C APIs.

As reported in an eWeek interview, when reporters asked Microsoft's Steve Ballmer if this was just a meaningless "hail fellow, well met!" announcement, Ballmer bristled: "You've been to a lot of silly press events—never one where somebody wrote a check for \$1.95 billion." Point taken, Mr. Ballmer.

In the software development industry, a billion dollars can effect serious change. Not only is our industry relatively small, but dollars spent swaying the hearts and minds of developers multiply themselves over the years. Sadly, Sun's balance sheet is such that even such a staggering amount of money is likely to be absorbed internally and not redistributed into the strategic partnerships that Sun will need if it is to gain desktop share.

What about Microsoft? What does it gain from this agreement, other than buying its way out of a legal headache? Nothing much, really. And the fact that it can afford to do such a thing, without generating any amount of hand-wringing discussion of strategic missteps, says a lot about the struggle Sun will have to become competitive on the desktop.

Larry O'Brien is a technology consultant and analyst, and the founding editor of Software Development Magazine.

WINDOWS & .NET WATCH



LARRY O'BRIEN

YOU'VE GOTTA HAVE FAITH

Maybe it's the full moon, but weirdness seems to be in the air.

The big news in the past few weeks is Microsoft's big-bucks settlement (and "collaboration agreement") with Sun, with everyone wondering what impact this agreement will have on Java. Rick Ross (of JavaLobby) spearheaded the hand-wringing with his article "Where Is Java in This Settlement?" (www.javalobby.org/nl/archive/jlnews_20040406o.html).

Rick has two main worries: First, Microsoft, which has a history of subsuming its "partners," will leverage its position to get control of (and destroy) Java as a platform. Second, since Sun is far from financially healthy (it posted a US\$760 million loss last quarter), it won't put any of the Microsoft settlement money into Java, and the language will wither.

Meanwhile, the lunatic fringe (I know I'll get flamed for that one) put in its two cents in the guise of Richard Stallman's "Free But Shackled: The Java Trap" (www.newsforge.com/programming/04/04/07/2021242.shtml).

Stallman is advocating that we abandon Java because it's not "free" (in the goodness-and-light sense). Our Java software is bound by Sun's licensing requirements since it requires Sun libraries (and practically speaking, a Sun JVM) to run. In other words, Sun is under attack by Microsoft, so we should

abandon Java for a "free" alternative such as Perl, PSP or Python.

Sun's James Gosling responded to this attack in his Web log: "We have not sold our soul to the Dark Side. We haven't overnight turned into mindless lap dogs. We've had a lot of experience with Microsoft over the years, and it has made us very cautious...We're not a bunch of moronic secret subversive Microsoft lap dogs...Relax. Have a little faith." (today.java.net/jag)

So can we relax and place our faith in Sun?

Developers have to predict the future to write viable software. Systems that we're working on now will be released months (or years) from now when the world may well have changed. Technical choices that we make now affect the long-term viability of those projects. When we use existing technology, we're taking a risk that it won't be obsolete when the product is released.

At the other edge of the continuum, you're taking a risk in going with an untried technology in the hopes that the technology will be mainstream when the software is released.

Successful software companies balance these risks successfully.

In the case of Java, the early adopters' risk-taking paid off big-time. Sun has

done an admirable (though not flawless) job of keeping Java viable.

Though many people have complained about the Java Community Process, it's worked better than any other standards bodies I've observed, and is vastly better than the chaotic free-for-all we call open source.

It pays to have strong entities (Sun and IBM) bringing order to the chaos into which Java would have degraded without that guidance. Democracy, as Plato noticed, doesn't always work out for the best.

Though Ross' concerns about Sun's long-term existence are real, it's unreal to think that Java will fail if Sun fails. Microsoft is in a much better position to succeed in the long term than Sun, which gets deeper and deeper in debt by the minute. Nonetheless, other companies, such as IBM, have too much invested in Java to risk their own success on Sun's. IBM would buy the company if it had to in order to prevent Java's failure.

Looking forward, Longhorn (the Windows XP successor, which is two to three years out) addresses the security and reliability problems of Windows in real ways.

Longhorn is not the usual Microsoft solve-a-technical-problem-with-PR hogwash, and many security professionals I know and respect are impressed by it.

So, here's a risk: Should we write off

Microsoft because its servers are often referred to as garbage, or should we be early adapters of the next Microsoft operating system because it will take over the world? Should we stick with the comfortable technology (Java) and run the risk of being left behind?

C# is not really a viable programming language now, at least among the crowd I hang with, because the underlying operating system isn't viable, but that situation could easily change. Indeed, the world could change.

Stallman's "free" scripting languages are not suited for production-quality apps. You can't hire people to program in them. There aren't billions of books written about them. Their libraries are so-so.

The question, then, is how do you maintain the long-term viability of Java with Longhorn on the horizon? The only way to do that is to work with Microsoft.

Frankly, I'm encouraged to see Steve Ballmer and Scott McNealy acting like grown-ups for a change. Microsoft needs Java—there's too much server-side programming done in Java for them to ignore it. Java needs Microsoft—it's the largest platform for programs. In the long term, cooperation is the only way to keep both the language and the platform viable.

Now let's see if they can pull it off. ■

Java expert Allen Holub is the president of Holub Associates, a consultancy in Berkeley, Calif.

JAVA WATCH



ALLEN HOLUB

THAT CERTAIN QUALITY

Software quality means different things to different people. To some, it means the number of bugs in an application. To others, it refers to response times, or even availability. For others still, it's about plugging security vulnerabilities.

Regardless of the approach, it's clear that business executives have awoken and come to see how much of their business rides on software that functions properly, is always available and is safe. The mandates coming down from boardrooms everywhere are getting louder and louder. And software vendors are starting to hear, as witnessed by new offerings from many different software vendors. Three of the companies' offerings highlight the different approaches to achieving quality software.

Longtime test and performance tool vendor Segue Software Inc. this month is delivering the Silk Central Quality Optimization Platform, designed to organize a company's efforts to deliver and maintain quality software. Andre Pino, Segue's chief marketing officer, noted three trends in application development that are exposing the current develop-test-QA cycle as wholly inefficient: the compression of business application cycles, the increase in the number of mission-critical applications within an organization, and the growing complexity of applications and environments, which Pino said will only be exacerbated by the proliferation of Web services.

"Testing has to take place earlier in the development cycle, and QA people need visibility into the tests developers are running as they develop their applications," he said. The Silk Central framework is at the heart of what Segue

is calling the Silk Common Architecture and consists of a set of APIs for plugging in management and test engines—Silk's and other vendors' tools—and includes a scheduler, a repository, an asset manager and a reporting engine. Also, Silk has created three new management modules, for testing in predeployment, performance monitoring in post-deployment, and issue tracking and reporting throughout the life cycle.

"There are organizational changes taking place," Pino said. "It's all about streamlining the QA process from beginning to end, and the only way to streamline is to formalize the test process earlier. Organizations are shifting to a position where they have a group across the enterprise to ensure quality throughout the entire application infrastructure."

At Ottawa-based start-up Klocwork, quality is improved when the process of assessing your assets is automated. "Understanding the structure of software is key," said Chris Federko, vice president of product marketing. "How has the structure eroded over time? How do you fix it and maintain it? Sometimes, you can fix something here and break something over there."

The company on May 10 released version 6.0 (the project was begun at Nortel Networks in 1996) of its Klocwork four-part static analysis solution, which includes a system-level analyzer, an architecture visualization tool, a metrics dashboard and a developer desktop. Among the highlights of the release are Eclipse integration (it already could be used with Visual Studio .NET and Visual Studio 6), the ability to publish architectural models with annotations, and a means of choosing different types of

analysis to get very focused reports. "You can turn on or off a particular type of error or a section of code," Federko explained. "You might have 5 million lines of code, but you're not working on all 5 million lines."

Typical static analysis tools can provide too much information, Federko said. "It's difficult to action that much information," he said.

Another start-up, Coverity Inc., believes software quality is improved when developers are asked to do code analysis to find any vulnerabilities that could affect performance.

"Testing is fundamentally different from code analysis," said Seth Hallem, president of Coverity. "Developers are hitting the wall because testing for security is like expecting the unexpected. How can you test for something you didn't anticipate? Code analysis comes in by looking at every possible behavior of a program and checking for serious mistakes. Vulnerabilities often fall into known violations of software development practices."

Coverity's product is SWAT, a C/C++ code analyzer that searches for vulnerability hotbeds. "We intercept inside the build process and funnel code as it gets built through our front end while the analysis is done on the back end," Hallem said. No one person can look down all the paths of an application in their head, but the tool can do that, he explained.

"Developers don't want the responsibility" for testing, he added, "but they also don't want to be fired for producing vulnerable code."

Like it or not, developers are being told to get involved in more detailed testing processes. Businesses realize the benefits of catching problems earlier in development; the costs they save could help those developers keep their jobs. ■

David Rubinstein is editor of SD Times.

INDUSTRY WATCH



DAVID RUBINSTEIN

BUSINESS BRIEFS

Financier **BayStar Capital Management LLC** has demanded the repayment of a US\$20 million loan to **The SCO Group Inc.** The investment firm claims that SCO violated terms of the loan; SCO is using the money to provide resources for lawsuits against Linux users. . . . The semiconductor products sector of **Motorola Inc.** has begun doing business as **Freescale Semiconductor Inc.**, a subsidiary of Motorola. The company has filed documents with the U.S. Securities and Exchange Commission regarding a public offering of stock, the first steps toward separating from Motorola. **Metrowerks**, the company's development tools division, will become a subsidiary of Freescale. . . . **Compuware Corp.** has signed a definitive agreement to acquire privately held business process automation software vendor **Change-point Corp.** for US\$100 million in cash. The Toronto-based Changepoint provides insight into IT spending, operations and management. The company will become a new business unit within Compuware, with about 190 Changepoint employees joining Compuware. For the 12 months ending March 31, 2005, the privately held Changepoint's revenues are expected to be \$30 million. . . . Embedded software vendor **MontaVista Software Inc.** has secured an additional US\$7 million in venture funds, bringing the total since the company was formed in 1999 to more than \$72 million. The proceeds will supplement the company's cash reserves. . . . **Sybase Inc.** will acquire the assets of privately held mobile access solutions provider **Dejima** to roll into its **iAnywhere Solutions** subsidiary. The cost of the deal was not disclosed. Dejima uses natural language processing and adaptive

agents to improve communication between users and information sources. Sybase will use the natural language technology to add spoken and text access to databases and enterprise applications, the company said. . . . **Microsoft Corp.** plans to extend its SQL Server Reporting Services with the acquisition of ad hoc reporting system company **ActiveViews Inc.** Terms were not revealed. ActiveViews' software lets users explore a database and create reports in a Web-based environment.

EARNINGS: Integration solution provider **Iona Technologies Inc.** announced first-quarter revenues of US\$16.9 million and net GAAP income of 1 cent per share. Revenue was down slightly from the \$17 million posted in the same quarter ended March 31 of last year. Iona issued advice that it expects second-quarter revenue to be between \$17 million and \$19 million. . . . **Telelogic AB**, which sells requirements management and modeling tools, showed earnings of US\$30.7 million for the first quarter ended March 31, an improvement of \$4.5 million, or 9 percent, over the same period a year earlier. The company showed 19 percent growth in the U.S. from the same quarter last year. . . . Data software provider **Pervasive Software Inc.** reported GAAP revenue of US\$14.2 million and net income of \$2.3 million for the third quarter of fiscal 2004 ended March 31, as compared to revenue of \$10 million and net income of \$1.8 million for the same quarter a year earlier. It marked the seventh consecutive quarter of increased revenue. The quarterly 2004 figures include gains from the acquisition of **Data Junction Corp.** in December 2003. ■

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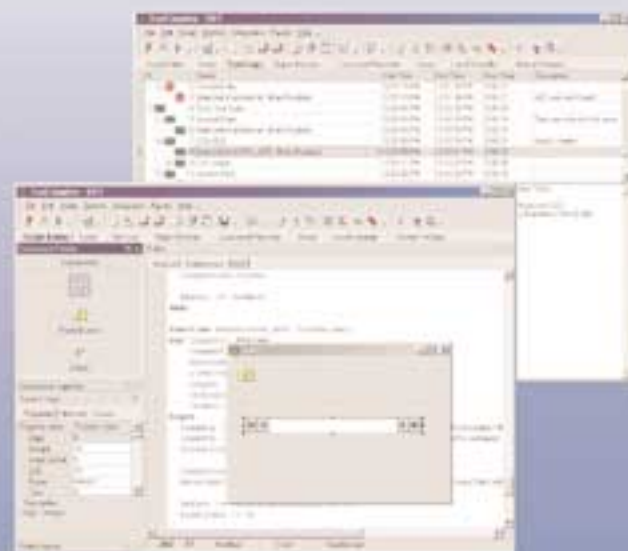
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